THE

AMERICAN JOURNAL
OF THE MEDICAL SCIENCES

FOR OCTOBER 1851.

CONTRIBUTORS TO THIS VOLUME.

Geo. W. Baskin, M. D., *of Mercer, Pa.*

Wm. M. Boling, M. D., *of Montgomery, Ala.*

Robert Bridges, M. D., *Professor of Chemistry in Philadelphia College of Pharmacy.*

W. J. Burnett, M. D., *of Boston.*

D. F. Condie, M. D., *of Philadelphia.*

Robert H. Cummins, *of Wheeling, Va.*

F. Donaldson, M. D., *of Baltimore.*

Silas Durkee, M. D., *of Boston.*

J. W. C. Ely, M. D., *of Providence, R. I.*

Charles Frick, M. D., *of Baltimore.*

Worthington Hooker, M. D., *of Norwich, Con.*

L. S. Joynes, M. D., *of Accomack, Va.*

R. La Roche, M. D., *of Philadelphia.*

Jno. Fred. May, M. D., *Professor of Surgery in the National College of Washington.*

A. F. McIntyre, M. D., *of Philadelphia.*

R. McSherry, M. D., *Surgeon U. S. N.*

Wm. W. Morland, M. D., *Secretary Boston Society for Medical Improvement.*

John Neill, M. D., *Demonstrator of Anatomy in the University of Pennsylvania.*

Geo. W. Norris, M. D., *one of the Surgeons to the Pennsylvania Hospital.*

R. Randolph, M. D., *of Pennsylvania.*

John K. Rauch, M. D., *of Burlington, Iowa.*

F. W. Sargent, M. D., *one of the Physicians to Girard College for Orphans.*

Henry H. Smith, M. D., *Assistant Lecturer on Demonstrative Surgery in the University of Pennsylvania.*

David Stewart, M. D., *of Baltimore.*

A. B. Taylor, G. P., *of Philadelphia.*

W. Henry Thayer, M. D., *of Boston.*

J. Mason Warren, M. D., *one of the Surgeons to the Massachusetts General Hospital.*

Wm. Maxwell Wood, M. D., *Surgeon U. S. N.*

TO READERS AND CORRESPONDENTS.

The communications of Drs. Parkman, Squibb, Kelly, Cock, and Garrison shall appear in our next number.

Other papers have been received and are under consideration.

The following works have been received:—

Medical History of the Expedition to the Niger, during the years 1841–42; comprising an Account of the Fever which led to its abrupt termination. By James Ormiston McWilliam, M. D., Surgeon of H. M. S. Albert, and Senior Medical Officer of the Expedition. With plates. London, 1843. (From the Author.)

Correspondence on the subject of the Eclair; and of the Epidemic which broke out in the said vessel. Presented to the House of Commons by command of her Majesty, in pursuance to their Address of the 23d of Jan., 1846. (From Dr. McWilliam.)

The Health of London, during the six months terminating March 29, 1851. By John Webster, M. D., F. R. S., &c. (From the Author.)

History of the Epidemic of Cholera in Chatham, Rochester, and Strovel, in 1849. By Thomas Stratton, M. D., Edin., Member of Edinburgh Clinical Society; Surgeon Royal Navy. In a letter to Sir Wm. Burnett, M. D., Med. Direct. Navy. Edinburgh, 1851. (From the Author.)

Principles of Physiology, General and Comparative. By W. B. Carpenter, M. D., F. R. S., F. G. S., etc. Third edition, with 321 wood engravings. Phila.: Blanchard & Lea, 1851. (From the Publishers.)

Surgical Anatomy. By Joseph Maclise, Surgeon. With coloured plates. Phila.: Blanchard & Lea, 1851. Part IV. (From the Publishers.)

A Practical Treatise on the Diseases of the Lungs and Heart, including the Principles of Physical Diagnosis. By Walter Hayle Walshe, M. D., Prof. of the Principles and Practice of Medicine and Clinical Medicine, in University College, London. Phila.: Blanchard & Lea, 1851. (From the Publishers.)

Special Anatomy and Histology. By Wm. E. Horner, M. D., Professor of Anatomy in the University of Pennsylvania, &c. &c. Eighth edition, illustrated with anatomical figures, in two volumes. Philadelphia: Blanchard & Lea, 1851. (From the Publishers.)

Hand-books of Natural Philosophy and Astronomy. By Dionysius Lardner, D. C., &c. &c. First Course: Mechanics—Hydrostatics—Hydraulics—Pneumatics—Sound—Optics. Illustrated by upwards of 400 engravings on wood. Philadelphia: Blanchard & Lea, 1851. (From the Publishers.)

The Geological Observer. By Sir Henry T. De la Beche, C. B., F. R. S. Philadelphia: Blanchard & Lea, 1851.

The Laws of Health, in relation to Mind and Body. A Series of Letters from an old Practitioner to a Patient. By Lionel John Beale, F. R. C. S. Philadelphia: Blanchard & Lea, 1851. (From the Publishers.)

The Transactions of the New York Academy of Medicine. Instituted 1847. Vol. I., Part I. Printed for the Academy. New York, 1851. (From the Academy.)

Mémoires sur la Digitaline. Par MM. Homolle et Quevenne. Rapports faits à l'Académie Nationale de Médecine le 8 Janvier, 1850, et le 4 Fevrier, 1851. Commissaires MM. Rayer, Soubeiran et Bouillaud Rapporteur. Paris, 1851.

Report of the Committee [of the Legislature of New York] on Medical Societies and Colleges, on petition of Dr. Wm. Turner, for penal enactments against bleeding. (From Dr. Tuthill.)

The New Jersey Medical Reporter, and Transactions of the New Jersey Medical Society. Edited by Joseph Parrish, M. D. July, Aug., Sept., 1851.

Report of the Louisiana State Medical Society on the Meteorology, Vital Statistics, and Hygiene of the State of Louisiana. By E. H. Barton, M. D. With an Appendix, showing the Experience of Life Insurance Companies in Louisiana. By H. G. Heartt. New Orleans, 1851. (From the Author.)

The Histories of the Colleges of Physicians and Surgeons, and of the Apothecaries' Company, including the Manuscript Annals of the London College of Physicians from 1682 to 1749, with the editor's plan of Medical Reform. Reprinted from the London Medical Examiner and one Faculty Journal. (From the Author.)

Proceedings of the Iowa State Medical and Chirurgical Society. Second Annual Meeting held in Fairfield, May 7th, 1851. Keokuk, 1851.

Proceedings of the 22d Annual Meeting of the Medical Society of Tennessee, held at Murfreesborough, April, 1851. Murfreesborough, 1851.

Minutes of the Proceedings of the Medical Society of the State of Georgia, at its Second Annual Meeting, held at Atlanta, on the 9th of April, 1851. Savannah, 1851.

Reports of the President and the Resident Physician of the Maryland Hospital [for the Insane] for the year 1850. Baltimore, 1850. (From Dr. John Fonerden.)

An Address on Medical Jurisprudence: its Claims to greater Regard from the Student and the Physician. Delivered before the Fellows of the Massachusetts Medical Society, at the annual meeting, May 28th, 1851. By David Humphreys Storer, M. D. Boston, 1851. (From the Author.)

Letter to the Right Honourable, the Earl of Shaftesbury, containing suggestions as to the Expediency of submitting certain Branches of Trade and Manufactures to Government Medical Inspection. By J. B. Harrison, M. R. C. S. in Manchester, 1851. (From the Author.)

The Dispensatory of the United States of America. By Geo. B. Wood, M. D., &c. &c., and Franklin Bache, M. D., &c. Ninth edition, carefully revised. Philadelphia: Lippincott, Grambo & Co., 1851. (From the Author.)

The Microscopist: or, a Complete Manual on the Use of the Microscope, for Physicians, Students, and all Lovers of Natural Science; with illustrations. By Joseph H. Wythes, M. D. Philadelphia: Lindsay & Blakiston, 1851. (From the Publishers.)

Elements of General and Pathological Anatomy, presenting a View of the Present State of Knowledge in these Branches of Science. By David Craigie, M. D., F. R. S. E., &c. &c. Second edition, enlarged, revised, and improved. Philadelphia: Lindsay & Blakiston, 1851. (From the Publishers.)

The Outlines of General Pathology. By M. L. Linton, M. D., Professor of Therapeutics and Practice of Medicine, in St. Louis University. St. Louis, 1851. (From the Author.)

Elements of Latin Pronunciation, for the Use of Students in Language, Law, Medicine, Zoology, Botany, and the Sciences generally in which Latin words are used. By S. S. Haldeman, A. M., Professor of Natural History in the University of Pennsylvania. Philadelphia: 1851. (From the Author.)

On the Employment of Water in Surgery. By Alphonse Auguste Amussat, of Paris. Translated from the French. By Frank H. Hamilton, Professor of Surgery in the University of Buffalo. Buffalo, 1851. (From the Author.)

A New Sign Language for Deaf Mutes. Being a Thesis for the Degree of Doctor in Medicine, presented and sustained before the Medical Department of the University of Buffalo, February, 1851. By Albert J. Meyer. Buffalo, 1851. (From the Author.)

Annual Circular of the National Medical College of Washington, D. C. Session 1851–2. Washington, 1851.

Annual Announcement of Rush Medical College of Chicago, Illinois. Session 1851–52. Chicago, 1851.

Announcement of the Course of Lectures in the Medical Department of the University of Michigan. Session 1851–52. Detroit, 1851.

Medical Department of Georgetown College, Washington, D. C. Annual Announcement of the Course of Lectures. Session 1851–52. Washington, 1851.

Report of the Medical Department of the University of Pennsylvania, for

the Session 1850–51, to the Alumni of the School. By the MEDICAL FACULTY. Philadelphia, 1851.

Annual Announcement and Circular of the Memphis Medical College. Session 1851–52. Memphis, 1851.

Annual Announcement of the Faculty of McGill College, Montreal, for Session 1851–52. Montreal, 1851.

Twenty-sixth Annual Circular of the Medical Faculty of the Washington University, Baltimore. Session 1851–52. Baltimore, 1851.

First Annual Announcement of the Medical Department of the University of Nashville. Nashville, 1851.

Annual Announcement of the College of Physicians and Surgeons of the Iowa State University, located in the City of Keokuk, Iowa, for the Session of 1851. Keokuk, 1851.

The following Journals have been received in exchange:—

The Edinburgh Medical and Surgical Journal. July, 1851.

The British and Foreign Medico-Chirurgical Review. July, 1851.

The London Medical Gazette. June, July, 1851.

Monthly Journal of Medical Science. July, 1851.

London Journal of Medicine. July, August, 1851.

The Journal of Psychological Medicine and Mental Pathology. Edited by FORBES WINSLOW, M. D. July, 1851.

Dublin Medical Press. July, August, September, 1851.

Provincial Medical and Surgical Journal. Joint editors WM. H. RANKING, M. D., Norwich, and J. H. WALSH, Esq., Worcester. June, July, August, 1851.

Medical Times. July, August, September, 1851.

The Half-Yearly Abstract of the Medical Sciences. Edited by W. H. RANKING, M. D., Cantab. Vol. XIII. January to June, 1851.

The Half-Yearly Abstract of the Medical Sciences: being a Practical and Analytical Digest of the Contents of the principal British and Continental Medical Works, published during the preceding six months; together with a Series of Critical Reports on the Progress of Medicine and the Collateral Sciences during the same period. Edited by W. H. RANKING, M. D., Cantab. Assisted by W. A. GUY, M. D., GEORGE DAY, M. D., HENRY ANCELL, M. D., and W. KIRKES, M. D. January to June, 1851. Philadelphia: Lindsay & Blakiston, 1851. (From the Publishers.)

The Retrospect of Medicine; being a half-yearly Journal, containing a Retrospective View of every Discovery and Practical Improvement in the Medical Sciences. Edited by W. BRAITHWAITE, Lect. on Obst. Med. Jan., June, 1851.

British American Medical and Physical Journal. Edited by ARCHIBALD HALL, M. D. July, 1851.

The American Journal of Pharmacy. Published by authority of the Philadelphia College of Pharmacy. Edited by WM. PROCTOR, Jr., Professor of Pharmacy, P. C. P. July, 1851.

The Medical Examiner. Edited by F. G. SMITH, M. D., and JOHN B. BIDDLE, M. D. July, August, September, 1851.

The Stethoscope and Virginia Medical Gazette. Edited by P. C. GOOCH, M. D. July, August, September, 1851.

The New Orleans Medical and Surgical Journal. A. HESTER, M. D., Editor and Proprietor. July, 1851.

The American Journal of Insanity. Published by the New York State Lunatic Asylum. Utica: July, 1851.

The New York Journal of Medicine and the Collateral Sciences. Edited by S. S. PURPLE, M. D. July, September, 1851.

Buffalo Medical Journal. Edited by AUSTIN FLINT, M. D. July, August, September, 1851.

The New York Register of Medicine and Pharmacy. Edited by C. D. GRISWOLD, M. D. July, August, 1851.

The Charleston Medical Journal and Review. Edited and published by D. J. CAIN, M. D. and F. PEYRE PORCHER, M. D. July, September, 1851.

The American Journal of Science and Arts. Conducted by Prof. B. SILLIMAN,

B. Silliman, Jr., and Jas. D. Dana; and in the Department of Chemistry and Physics, by Dr. Wolcott Gibbs. July, September, 1851.

The American Journal of Dental Science. Edited by Chapin A. Harris, M. D., D. D. S., and Alfred A. Blandy, M. D., D. D. S. July, 1851.

Nordamericanischer Monatsbericht für Natur-und Heilkunde. Redigirt von Dr. W. Keller and Dr. H. Tiedemann, in Philadelphia, and Dr. Herzka, in New York. July, August, September, 1851.

The Western Journal of Medicine and Surgery. Edited by L. P. Yandell, M. D., and T. S. Bell, M. D. July, August, September, 1851.

The Western Lancet and Hospital Reporter. Edited by L. M. Lawson, M.D. and Geo. Mendenhall, M. D. July, August, September, 1851.

The Western Medico-Chirurgical Journal. Edited by J. F. Sanford, M. D., and S. G. Armor, M. D. June, July, August, 1851.

St. Louis Medical and Surgical Journal. Edited by Drs. Linton, Moore, M'Pheeters, and Johnson. July, August, 1851.

The North Western Medical and Surgical Journal. Edited by John Evans, M. D. July, 1851.

Northern Lancet. Edited by Drs. H. Nelson, and F. J. D'Avignon. August, September, 1851.

The Ohio Medical and Surgical Journal. Edited by R. L. Howard, M. D. July, 1851.

Transylvania Medical Journal. Edited by E. L. Dudley, M. D., H. M. Bullitt, M. D., and B. J. Raphael, M. D. September, 1851.

Communications intended for publication, and Books for Review, should be sent, *free of expense*, directed to Isaac Hays, M. D., Editor of the American Journal of the Medical Sciences, care of Messrs. Blanchard & Lea, Philadelphia. Parcels directed as above, and sent (carriage paid) under cover, to John Miller, Henrietta Street, Covent Garden, *London;* or to John Wiley, or G. P. Putnam, *New York;* or W. D. Ticknor, *Boston;* or M. Hector Bossange, Lib. quai Voltaire, No. 11, *Paris*, will reach us safely and without delay. We particularly request the attention of our foreign correspondents to the above, as we are often subjected to unnecessary expense for postage and carriage.

All remittances of money, and letters on the *business* of the Journal, should be addressed *exclusively* to the publishers, Messrs. Blanchard & Lea.

☞ The advertisement-sheet belongs to the business department of the Journal, and all communications for it should be made to the publishers.

CONTENTS

OF THE

AMERICAN JOURNAL

OF THE

MEDICAL SCIENCES.

NO. XLIV. NEW SERIES.

OCTOBER, 1851.

ORIGINAL COMMUNICATIONS.

MEMOIRS AND CASES.

ART. PAGE

I. On the Pathology of Epidemic Dysentery. By Charles Frick, of Baltimore, Maryland. - - - - - - - - - 305

II. Cases of Amputation. By Jno. Fred. May, M. D., Professor of Surgery in the National Medical College of Washington, and one of the Surgeons to the Washington Infirmary. (With a wood-cut.) - - - - 313

III. On a rarely observed, but very fatal Effect of Gastro-intestinal Revellents; especially of the Tartrate of Antimony and Potassa, and particularly in the treatment of Pneumonia. By Wm. M. Boling, M. D., of Montgomery, Alabama. - - - - - - - - 330

IV. Bernard's Recent Discoveries in Physiology. Reported by F. Donaldson, M. D., Baltimore, Maryland. - - - - - - - 337

V. Extracts from the Records of the Boston Society for Medical Improvement. By Wm. W. Morland, M. D., Secretary. - - - - - 364

VI. The Microscope, and Renal Affections; and particularly that condition of the Kidney known as Bright's Disease. By W. J. Burnett, M. D. - 373

VII. Case of Molluscum developed by an Injury, and presenting, under the Microscope, the Characters of Medullary Cancer. By Henry H. Smith, M. D., Assistant Lecturer on Demonstrative Surgery in the University of Pennsylvania. (With three wood-cuts.) - - - - - 396

VIII. On Nausea and Vomiting as a Symptom of Cardiac Polypus. By Geo. W. Baskin, M. D., Member of the American Medical Association. (Read before the Mercer County Medical Society.) - - - - 404

IX. Case of Stricture of the Œsophagus. By Robert H. Cummins, M. D., Wheeling, Virginia. - - - - - - - - - 409

REVIEWS.

X. A Practical Treatise on the Diseases and Injuries of the Urinary Bladder, the Prostate Gland, and the Urethra. By S. D. Gross, M. D., Professor of Surgery in the University of Louisville; Member of the American Medical Association; Author of "Elements of Pathological Anatomy," etc. etc.—With one hundred and six illustrations. Philadelphia: Blanchard and Lea, 1851. 8vo. pp. 726. - - - - - - 415

ART. PAGE
XI. Letters to a Candid Inquirer on Animal Magnetism. By William Gregory, M. D., F. R. S. E., Professor of Chemistry in the University of Edinburgh. Philadelphia: Blanchard and Lea, 1851. - - - 434

BIBLIOGRAPHICAL NOTICES.

XII. Surgical Anatomy. By Joseph Maclise, Surgeon. (With coloured plates.) Part IV. Philadelphia: Blanchard and Lea, 1851. - - 445
XIII. Urinary Deposits; their Diagnosis, Pathology, and Therapeutical Indications. By Golding Bird, A. M., M. D., F. R. S., F. L. S., Assistant Physician, and Lecturer on Materia Medica and Therapeutics, at Guy's Hospital, &c. &c. &c. Second American, from the third and enlarged London edition. Philadelphia: Blanchard and Lea, 1851. - 447
XIV. Principles of Physiology, General and Comparative. By William B. Carpenter, M. D., F. R. S., F. G. S., etc. etc. etc. Third edition. With three hundred and twenty-one wood engravings. Philadelphia: Blanchard and Lea, 1851. 8vo. pp. 1098. - - - - - 448
XV. Transactions of the Medical Society of the State of Pennsylvania at its Annual Session, held in the city of Philadelphia, May, 1851. Vol. I. Published by the Society. 8vo. pp. 128. - - - - - 449
XVI. History of Medical Education and Institutions in the United States, from the first Settlement of the British Colonies to the year 1850; with a chapter on the Present Condition and Wants of the Profession, and the Means necessary for supplying those Wants, and elevating the Character, and extending the Usefulness of the Whole Profession. By N. S. Davis, M. D., Professor of Principles and Practice of Medicine in Rush Medical College, etc. etc. Chicago, 1851: 12mo. pp. 228. - - 451
XVII. The Laws of Health, in relation to Mind and Body: A Series of Letters from an Old Practitioner to a Parent. By Lionel John Beale, M. R. C. S. Philadelphia: Blanchard and Lea. 12mo. pp. 295. - 453
XVIII. The Outlines of General Pathology. By M. L. Linton, M. D., Professor of the Theory and Practice of Medicine in the Medical Department of the St. Louis University. St. Louis, 1851: 8vo. pp. 205. - 454
XIX. Lectures on Eruptive Fevers, as now in the Course of Delivery at St. Thomas's Hospital, in London. By George Gregory, M. D., Fellow of the Royal College of Physicians of London; Physician to the Small-pox and Vaccination Hospital at Highgate; Corresponding Member of the National Institute of Washington, etc. First American edition, with numerous additions and amendments by the author, comprising his latest views. With Notes and an Appendix, embodying the most recent opinions on Exanthematic Pathology; and also Statistical Tables and Coloured Plates. By H. D. Bulkley, M. D., Physician to the New York Hospital, Fellow of the New York College of Physicians and Surgeons, etc. etc. New York, 1851: S. S. and W. Wood. 8vo. pp. 376. - - 455
XX. Elements of General and Pathological Anatomy, presenting a View of the Present State of Knowledge in these Branches of Science. By David Craigie, M. D., F. R. S. E., etc. etc. Second edition, enlarged, revised, and improved. Philadelphia: Lindsay and Blakiston, 1851. 8vo. pp. 1072. - - - - - - - - 463
XXI. The Microscopist; or a Complete Manual on the Use of the Microscope: for Physicians, Students, and all Lovers of Natural Science. With illustrations. By Joseph H. Wythes, M. D. Philadelphia: Lindsay and Blakiston, 1851. - - - - - - - 464
XXII. The Philosophy of Vital Motion. By Charles Bland Radcliffe, M. B., Licentiate of the Royal College of Physicians; Lecturer on Vegetable Physiology and Botany at the Westminster Hospital, etc. etc. London, 1851. 8vo. pp. 158. - - - - - - 465
XXIII. Observations on the Diseases of the Rectum. By T. B. Curling, F. R. S., Surgeon to, and Lecturer on Surgery at the London Hospital, etc. London, 1851. - - - - - - - 468

ART. PAGE
XXIV. On the Therapeutic Application of Electro-Magnetism in the Treatment of Rheumatic and Paralytic Affections. By Robert Froriep, M. D., Public Professor of General Surgery in the University of Berlin, &c. &c. Translated from the German, by Richard Moore Lawrence, M. D. London: Henry Renshaw, 1850. - - - - - - - 470

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES IN THE MEDICAL SCIENCES.

FOREIGN INTELLIGENCE.

Anatomy and Physiology.

PAGE
1. Absence of the Pericardia' Sac, the Heart lying in the Cavity of the Left Pleura. By Dr. Baly. 471
2. On the Persistence of Vital Properties in Limbs in the State of Cadaveric Rigidity. By M. Brown-Sequard. - - - 472

Materia Medica and Pharmacy.

3. On Antiseptics. By MM. Augend and Robin. - - - 473
4. On Local Anæsthetics. By M. Aran. - - - - - 474
5. On the best Mode of preparing the Juice of Dandelion, so that it shall continue in perfect preservation throughout the year. By Mr. Donovan. - - - 475
6. On the Galvanic Cataplasms of Recamier. By Dr. Tilt. - - 477

Medical Pathology and Therapeutics and Practical Medicine.

7. Lungs showing the Arrest of Phthisis in the Third Stage of the Disease. By Dr. Quain. - 478
8. A Statistical Report upon Disease of the Heart, derived from a consideration of all the Cases admitted into St. George's Hospital during the last two years and a half. By D. Barclay. - 480
9. On Anasarca in Disease of the Heart. By M. Chomel. - - 481
10. Cases in which there was unusual Difficulty in the Diagnosis of Pleuritic Effusions. By T. A. Barker, M. D. - - - 482
11. Treatment of Erysipelas by the Muriated Tincture of Iron. By Dr. G. Hamilton Bell. - 482
12. Cod-Liver Oil in Gaol Cachexia. By Caleb Rose, Esq. - 483
13. Kousso. By Dr. Crisp. - 484
14. Case of Epilepsy treated by Tracheotomy. By W. H. Cane, Esq. - - - - - 484
15. On the Causes, Consequences, and Treatment of Inflammation of the Veins. By Henry Lee, Esq. - - - - - 484
16. Effects of Molluscous Tumours when developed in the External Auditory Meatus. By Mr. Toynbee. - - - - 485
17. Case in which the Liver contained Air. By M. Piorry. - 485
18. On a New Epidemic Exanthem. By Dr. Laycock. - 486
19. On Eclampsia Nutans. By Dr. Faber. - - - - 487

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

20. On the Application of Anæsthetic Remedies to Surgical Purposes. By Dr. Fleming. - 488
21. Acute Traumatic Tetanus treated with Chloroform. By R. G. H. Butcher, Esq. - - 498
22. On the Use of Collodion in Ingrowing Nail. By M. Meynier. - - - - - - 499
23. Some Observations on the Pathology of those Affections of the Ear which produce Disease in the Brain. By Joseph Toynbee, F. R. S. - - - - - 499
24. Treatment of Aneurism by Compression. - - - - - 500
25. Case of Popliteal Aneurism treated by Compression; with Remarks, and a List of the Cases treated in Dublin. By O'B. Bellingham, M. D. - - - - 500
26. Popliteal Aneurism; Pressure; Deligation of the Femoral Artery; Recovery. By Mr. Lawrence. - - - - - 501
27. Aneurismal Dilatation of the Popliteal Artery, treated by Pressure. By James Paget, M. D. - - - - - - 502
28. Popliteal Aneurism—Treatment by Pressure—Deligation of the Artery—Gangrene—Death. By Mr. Hilton. - - 503
29. Popliteal Aneurism Cured by Pressure on the Femoral Artery. By Dr. W. Ward. - - - 504
30. Account of the Dissection of a Case in which two Popliteal Aneurisms had been treated by Compression of the Femoral Arteries. By Prescott Hewett. 505
31. Treatment of Strictures of the Urethra. By G. J. Guthrie, Esq. - - - - - - 507
32. Four Cases of Ovariotomy. By Dr. Elkington. - - - 508
33. Case of Ovariotomy successfully performed. By John Beales, M. R. C. S. - - - 511
34. An Ovary removed by mistake for a Labial Cyst. By M. Guersant. - - - - - - 511
35. Serious Hemorrhage following Excision of the Tonsils. By M. Chaissaignac. - - - - 511
36. Diaphragmatic Hernia of the Stomach, Spleen, and Colon. - 512
37. Excision of the Astragalus, successfully performed for Fracture and Dislocation of that Bone. By M. Thore. - - 512

MIDWIFERY.

38. On Obstetric Practice of the Vienna Lying-in Hospital. By Dr. Arneth. - - - - - 513
39. Method of inducing Premature Labour. By Dr. Moir. - 516
40. Induction of Premature Labour. By Dr. Simpson. - - 517
41. Epidemics of Puerperal Fever. By Dr. Arneth. - - - 518
42. On the Contagiousness of Puerperal Fever. By Dr. Simpson. - - - - - - - 521
43. Contagiousness of Puerperal Fever. By Dr. Peddie. - - 528
44. Causes and Treatment of Secondary Hemorrhage after Parturition. By Dr. M'Clintock. - 529

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

45. Poisoning with Oxalic Acid. By Dr. Didama. - - - 532
46. Note on the Poisonous Properties of the Milky Humour secreted by the Cutaneous Pustules of the Land Lizard and the Common Toad. By MM. Gratiolet and Cloez. - - - 542
47. On the Diminution in Weight of New-Born Infants. By Dr. Hoffman. - - - - - 533
48. On some Points in Medical Jurisprudence, deduced from a Series of Post-mortem Examinations for Judicial Purposes. By Dr. Casper. - - - - 533
49. Sale of Arsenic, Regulation Act. - - - - - 534
50. Poisoning. - - - - 534
51. Poisoning by Strychnine. Tannin proposed as an Antidote. 534

PAGE

52. Case of Poisoning by Scheele's Green (on Paper Hangings). By Thomas Stewart Traill, M. D. - 535
53. On the Presence of Mineral Poisons in the Nervous System, as a Sequence of Acute Poisoning. By M. Roucher. - - 535
54. Homeria Collina. By L. Pappe, M. D. - - - - 536
55. Nicotine. By M. Orfila. - 536
56. On the Changes which Calomel undergoes in the Intestinal Canal. By Dr. George V. Oettinger. - - - - - 539
57. On Bromine as a Toxicological Agent. By Henry Wurtz. - 540

MISCELLANEOUS.

58. On the Action of Water upon Lead. By J. Birkbeck Nevins, M. D. - - - - - - 540
59. Professor Faraday on Schönbein's Ozone. By Professor Faraday. - - - - - - 543
60. On Some Pathological Effects produced by Atmospherical Electricity. By Prof. Schönbein. 547

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Wills' Hospital—Service of Dr. Littel—Cases discharged from April 1st to July 1st, 1851. By A. F. Macintyre, Resident Surgeon. - - - - - - 549
Statistics of Mortality of Baltimore, Maryland, in 1850. By L. S. Joynes, M. D. - - 553
On Henry's Magnesia. By David Stewart, M. D. - - - - 554

DOMESTIC SUMMARY.

Experiment of introducing Cancerous Matter beneath the Integument of a Frog. By Dr. Leidy. - - - - - 555
New Method of Preventing Fats and Fixed Oils from becoming Rancid. By Dr. C. W. Wright. 555
In a peculiar appearance of the Tongue in Malarial Diseases. By Dr. Thomas C. Osborne. - 555
Femoral Aneurism cured by Compression. By Dr. H. N. Bennett. 557
Case of Hermaphroditism. By Dr. John Neill. - - - 558

THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR OCTOBER 1851.

ART. I.—*On the Pathology of Epidemic Dysentery.* By CHARLES FRICK, of Baltimore, Maryland.

ALL authors heretofore who have written of dysentery, have shown a marked difference to exist between the symptoms of this disease as it occurs sporadically, and when its visitations assume an epidemic character. But both these varieties have been described as inflammation of the mucous membrane of the lower part of the alimentary canal, and the greater intensity in the symptoms of the disease in its epidemic form is supposed to depend on some particular and inexplicable constitution of the atmosphere. That dysentery is an inflammation we do not attempt to deny, but for reasons that will be presently adduced we are convinced that when it assumes an epidemic form, many cases occur in which there is a period varying from seven to ten days at the onset of the disease, when most of the so called symptoms of dysentery are present, when no true inflammation can be said to exist, and when the disease is particularly amenable to treatment. In the hope of exciting the attention of more able pathologists to a point which we cannot but think of decided practical importance, we have ventured the following remarks for your valuable journal. In the first place, let us glance at the symptoms that these two varieties present. The cases that occur sporadically we find make their appearance at all seasons of the year, but more particularly when those substances are used as diet whose immediate effect is to produce irritation of the alimentary canal. They may or may not be preceded by diarrhœa, and oftentimes obstinate constipation seems to be the immediate exciting cause. But in a short time violent tenesmus ensues with frequent calls to stool, and the discharges are found to consist of tenacious bloody mucus, inoffensive to the smell, and each operation varying from half a drachm to half an ounce in

quantity. In an individual in ordinary health, decided evidences of prostration do not make their appearance until ten days or two weeks have elapsed, unless the frequency of the discharges be very great; and the patient during the whole time complains of more or less pain on pressure of the abdomen, particularly in the left iliac region. From the very commencement there is a full strong pulse, hot skin, with other evidences of febrile action, and it is only when the severity of the disease has produced exhaustion in the vital powers, or convalescence is about to be established, that these symptoms subside. The mortality among these cases is not very great, and they are always benefited by decided antiphlogistic treatment, such as bloodletting, local or general, saline aperients, &c.

On the other hand, most epidemics of dysentery, as is well known, differ widely from the symptoms we have just detailed. During the summer and autumn months, a patient presents himself complaining of diarrhœa, the stools if examined are found to be of a light colour, more or less inclining to ash, and if kept a short time, bubbles of air are found escaping from the surface. Now, if the vessel containing the discharge be placed in an atmosphere of pure air, with a solution of acetate of lead in one watch glass and lime water in another, which may be readily accomplished by covering the whole with a bell glass, in a short time the black sulphuret of lead and carbonate of lime will be deposited, thus evidencing the presence of sulphuretted hydrogen and carbonic acid in considerable quantities in the fecal discharge. This result will occasionally take place in the stools of ordinary diarrhœa, but to a much less degree. In the patients thus applying for treatment one prominent symptom is particularly observable, that is, the prostration of strength, which is entirely out of proportion to the frequency and amount of the discharges. This diarrhœa may pass off without interference, may be relieved by treatment, or be followed by and alternated with the characteristic stools of dysentery, and in the variety of the disease we are now describing, it will be found on inquiry that few cases occur which have not been preceded, or are not accompanied by discharges having somewhat this character. And here we would remark that the presence of fecal matter in the stools, which in sporadic cases is always an evidence of improvement in the patient's condition, is by no means a symptom of the same importance, for stools having this character will often be found to alternate with discharges consisting almost entirely of bloody mucus for days. Tenesmus, although usually present, is not a symptom of the same intensity as in the other form, and the pain, instead of being referred to the verge of the anus, is described as being more of a colicky character, and usually precedes by a short period the desire of going to stool. The discharges consisting of an admixture of blood and mucus with numerous epithelium scales as ascertained by the microscope, are in general much less frequent, and larger in quantity, offensive to the smell, and oftentimes contain more or less of the ash-coloured discharge noticed above. As the disease advances they become more fluid, resembling in many instances ordinary flesh washings, or

better still the water in which bones and flesh have been macerating for some days in the dissecting-room. Febrile symptoms of a sthenic character we have never seen; on the contrary, as in the diarrhœa just spoken of, from the very first the prostration of strength is extreme, totally out of proportion to the frequency and amount of discharges, the skin is cold and covered with a clammy perspiration, the expression of face becomes anxious, and the pulse is weak and depressed. The results of treatment also contrast strongly with the other variety. Bloodletting, either local or general, is decidedly injurious, by adding to the prostration which is already too great, and saline purgatives increase the amount and frequency of the stools without altering their character, both of which remedies, as is well known, are in sporadic cases of dysentery of the utmost importance. Preparations of mercury are equally useless, for however valuable this medicine may be in cases occurring sporadically, the weight of opinion is decidedly against its use when the disease is of an epidemic type. Dr. James Johnson and Mr. Annesley, whose experience was derived from the dysentery as it appears in the East Indies, speak most decidedly of the efficacy of calomel, but on the other hand, Dr. Ballinghall, Mr. Walsh, who on the Ragoon expedition writes "that mercury only exasperated all the symptoms of dysentery," Dr. Frank and Sir James Macgrigor are all of the other opinion, and in this they are supported, we think, by most practitioners of any note at the present day.

If we consider attentively the collection of symptoms we have previously detailed, and note the very great mortality attendant upon them, even in the first few days, we cannot but be struck with the fact that the cause of death is not sufficiently evident, that the severity of the local disturbance is inadequate to produce a fatal result, and the idea constantly intrudes itself, that some morbid poison in addition to the local disease has an agency in producing the extreme prostration and subsequent fatal termination. But this idea has some facts to substantiate it, and is in reality deduced from the facts themselves. In the fall of 1849 we examined the bodies of five convicts in the Maryland penitentiary who had died, after a few days' illness, of this disease, and having the symptoms described above. In no one did we find decided evidences of inflammatory action. The rectum and lower part of the colon were ramified throughout with arborescent injection, and the shreds of mucous membrane, when drawn off by the forceps, did not exceed six or seven lines in length. But in no case was there either ulceration or sloughs, although the membrane throughout was more deeply coloured of a black or blackish-green than is observed in a healthy individual. The follicles also were much enlarged. On the other hand, in all cases of this disease occurring sporadically, and ending fatally, we have always found a local lesion sufficient to produce death.

The causes that produce these varieties differ equally. Isolated cases can be explained by the individual having been subjected to exposure, such as wet feet, a sudden check to the cutaneous exhalation, or more commonly still

to errors in diet. But in the epidemic variety no such distinct causes are necessary, although errors in diet, as we shall presently explain, increase the tendency to an attack. In the Maryland penitentiary, where nearly the same body of men are always confined, no case of disease of this character is likely to be passed over unobserved; and having kept, during the past and present summer, the correct range of the thermometer with the daily number of cases of diarrhœa, cholera morbus, and dysentery subjected to treatment, we are enabled to show that the correspondence between the two is very exact. In other words, taking the range of the thermometer to be between 78° and 95°, we have found the cases to increase and decrease almost in proportion to the elevation and depression of the temperature. And it must be remembered that this result occurred in individuals subjected almost day by day to the same articles of diet. We are well aware that this is no new fact, for the correspondence just detailed has, doubtless, been observed numberless times by different pathologists. Stoll, who makes the most decided difference between dysentery as it occurs in the summer, and at other seasons of the year, thinks the principal cause for this difference to be the high temperature that then prevails, but he explains the effects by supposing a sudden check to the perspiration to occur, as a consequence of which the internal membrane becomes congested and subsequently inflamed. The deduction that seems to us naturally to occur from it is, that the starting point of the morbid changes that occur in the disease, is to be found in some effect produced by excessive heat, or, in other words, depression of the vital powers.

Let us glance for a moment at the changes the food undergoes in digestion. It is taken into the stomach, supplied with gastric juice, biliary and pancreatic secretions; its nutritive part separated from the excrementitious portion, which is passed off through the rectum and colon. If all these secretions are supplied in due proportion, and the food remains the requisite time in the alimentary canal, no fat globules can be distinguished, all this substance having undergone digestion by the addition of the pancreatic secretion, nor do we ever discover anything resembling fermentation taking place, for this process is effectually prevented by the presence of the bile, as Bernard's recent experiments have proved. If, on the other hand, we take a portion of food consisting of the ordinary articles of diet, particularly those containing much sugar or vegetable acid, and subject it for some hours to the combined influence of heat and moisture, we will find nearly the same result occurring, as if the meal had been placed in the stomach, and the ordinary healthy secretions withdrawn; that is, we should find the food undergoing decomposition, numerous organic acids produced as a result of this decomposition, and large quantities of sulphuretted hydrogen liberated. A principal cause of this disease has long been acknowledged to be owing to impure air derived from the patient's own body, such, for instance, as is generated in the holds of vessels, hospitals, camps, and all those places where large bodies of men are collected together, or where their excrements are allowed to remain. Moreover we are

aware how common diarrhœa and colicky pains are in those students who spend much of their time in the dissecting-room, where animal decomposition is taking place. But we deduce from the facts just stated that the symptoms previously detailed are produced by the effects of some one of these morbid poisons being absorbed from the surface of the intestinal canal into the circulation, and from its known effects upon the human frame, it would seem that this agency might be attributed to the sulphuretted hydrogen. Whatever it may be, is not in reality a subject of vital importance, for after all it is but an effect of a cause still further removed. If we look upon some element of this character as the cause of the condition which produces the morbid discharges from the bowels, and, at the same time, acknowledge that this element, whatever it may be, is a consequence of the absence of the biliary and other secretions, we are forced to look for the starting point of the disease in the abolition or perversion of some power which controls these secretions. We have shown, in speaking of the treatment of this form of dysentery, how little power those remedies, whose admitted action is to produce increased biliary secretion, have over the disease. By forcing the liver to secrete more bile, a temporary benefit may be experienced, but it must be temporary only, inasmuch as the cause which first produced diminished secretion of this organ is still in existence. We have stated the effect of a high temperature in increasing the number and severity of the cases, independent of irritating articles of food, and it will be seen, on reference to any writer on the causes of epidemic dysentery, how great an influence in producing the disease may be ascribed to causes which depress the vital powers, whether they be physical or mental, such as fatigue, forced marches, the moral effect of a defeat in armies, &c. And we are aware, that although the mode of action of the different secretions is, in most cases, a chemical one, yet for their proper elimination how much is due to a requisite supply of nervous energy, so that when the latter is much depressed, secretion takes place in a much diminished quantity. An illustration of this is constantly observed in many cases of so-called cholera morbus. For instance, an individual, during the summer season, is in the habit of taking, day by day, nearly the same articles of food and in the same quantity. Under ordinary circumstances, no disturbance is produced, digestion is performed properly, and no inconvenience is experienced. But, let anything occur by which the nervous system becomes much debilitated, whether it be excessive bodily fatigue or mental depression, and we find in a short time that the same articles of food, which previously produced no disturbance, are rejected, almost undigested, by vomiting and purging. The explanation is, that as a consequence of nervous exhaustion, secretion does not take place, and the undigested food produces such decided irritation that nature endeavours to relieve the cause by ridding the patient of the effects, and we all recognize this principle in our treatment, first by advising our patients to abstain from food after being subjected to those causes which tend to produce this depres-

sion, and secondly in relying principally upon the use of stimulants when the disease itself is declared.

Having advanced so far and ascertained that in certain cases of dysentery, we are to look for the primary cause in depression of nervous energy, we will briefly detail the facts which led to these speculations, and endeavour to offer some suggestions for treatment which we are assured rest on a broader foundation than mere theory.

In the summer of 1850, during which dysentery prevailed to a great extent and was very fatal, we were called to a man who had had the disease for a period of three weeks. He was much emaciated, and so weak that his stools were passed in bed, and they varied in number from twenty to thirty in the twenty-four hours. They resembled in appearance ordinary flesh washings, and their odour was so offensive that his room was almost intolerable. This man was in such a condition of life that he had commanded the best medical treatment, and all the ordinary modes of purifying the atmosphere of his room had been observed. Thinking the patient's condition hopeless, but fearing that this state of things mights produce disease in other members of his family, and at the same time supposing that the offensive odour was produced by decomposition within the alimentary canal, it occurred to us to administer something that would prevent this decomposition and render the discharges less deleterious. We accordingly ordered naphtha and charcoal, the first from its known properties of preventing decomposition, the other for the purpose of absorbing the different gases as they were liberated. To our surprise the next day the stools had not only lost all their offensive odour, but contained some slight evidences of fecal matter. In a few days they were almost natural, and although no other remedy was administered, they continued so until convalescence, which owing to his excessive debility was much protracted, was fairly established. The remarkable recovery of this man, recalled to my mind the popular idea of the efficacy of powdered charcoal and burnt rice in dysentery, which I had heard advanced frequently, but had never attached much importance to, and I was inclined to give it a further trial. Abundant opportunities were presented, both in private practice and at the Maryland Penitentiary, but as no exact record was preserved until this summer, I will confine myself to those cases which have occurred in the Maryland Penitentiary since the first day of June, a period of seven weeks. During that time forty-six cases have been treated, thirty-one having occurred since the first day of July, a period of three weeks. No one of these cases has been fatal, and the most marked difference has been observed in the symptoms of the different varieties, the two extremes having been well marked, but the intermediate cases being more unsatisfactory. Rochelle salts followed by pills composed of strychnine, subnitrate of bismuth and morphia were administered to twenty-one of these forty-six cases. In thirteen the effect was perfectly satisfactory, the duration of the disease varying from twelve hours to three days. Five of the nine who were not benefited were made decidedly worse, the mucous and bloody

discharges increasing in quantity and frequency, while in the other four, during the administration of the salts loose feculent discharges were produced, but they immediately became dysenteric on its discontinuance. Some of these cases were treated with charcoal and naphtha, and in four of the five first mentioned the beneficial result was very decided, in the other the effect was negative. In twenty of the forty-six cases, charcoal and naphtha suspended in cinnamon water was given from the first. In fourteen of these the beneficial result was most decided, in two or three instances but one unhealthy stool being discharged after the first dose of the remedy. In the whole fourteen the stools became natural in the course of forty-eight hours. In four of the six others, the discharges became increased in quantity and frequency after a few doses of the charcoal and naphtha. Rochelle salts was then administered, and the almost immediate benefit in three of the four cases was very apparent. Every case not benefited by either of these modes of treatment we found exceedingly obstinate, and convalescence was delayed much beyond the usual time. Although our experience out of doors is not thus reducible to numbers, we can state that very nearly the same results have occurred, with the exception that the cases to be benefited by charcoal and naphtha were not so numerous. Even in this small record of cases the beneficial effects of the remedies employed may, we think, be perceived, but we are willing to admit that many and opposite modes of treatment might have restored the patient to health. Our object was, after having contrasted the symptoms and *post-mortem* appearances of dysentery as it makes its appearance under different conditions, and speculated upon the cause of this difference, to show that it was equally marked in the treatment of the two varieties. It is true that in all local inflammations a marked difference is observable between the cases of disease that occur sporadically, and when they assume an epidemic type. We are well aware that bloodletting, which is the sheet-anchor of safety in the treatment of pneumonia when it occurs sporadically, is absolutely injurious in some epidemics of this disease; but if a fatal result should ensue, decided evidences of inflammation will be found in both. That such is not always the case in dysentery, at least during the first week or ten days, we have already shown, nor indeed has it ever been denied by the highest authorities. Grisolle, in his "*Pathologie Interne*," describes dysentery as a disease characterized by colics more or less severe, by a frequent and almost constant desire to go to stool, and by the discharge of a small quantity of bloody mucus or reddish serum. In speaking of the *post-mortem* appearances he says, in the bodies of those persons who die in the first days of acute dysentery, the mucous membrane of the colon and rectum, sometimes even as far as the small intestine, is somewhat reddened, thickened and rather more friable than usual. The follicles of the colon are increased in size and their orifice is marked by a black point, and in addition to these changes the intestinal walls are found to be more or less œdematous. He then goes on to state that when the disease is further advanced, ulceration makes its appearance. Twining and Sir James

Macgrigor, on the contrary, in detailing the *post-mortem* appearances of dysentery as observed by them in the Peninsula and the East Indies, state that in every case examined, large and extensive ulceration was found to exist. This is readily explained by the fact that the cases did not prove fatal until eight or ten days after the commencement, or that the disease advanced with a rapidity to which in this latitude we are unaccustomed. Their results cannot, however, disprove that there is a stage, be its duration longer or shorter, which in a majority of cases readily yields to treatment, and if the cause be analogous or identical to what I have suggested the proper mode of treatment must occur to every sound thinking man.

We would, in conclusion, call your attention to the very marked similarity between the disease so fatal among children during the summer months, called cholera infantum, and the variety of dysentery we have been speaking of. Cholera infantum is confined almost entirely to cities, or where large numbers of children are crowded together. The number of cases bears a very exact ratio to the intensity of the temperature, and the child's strength is prostrated out of proportion to the quantity and frequency of the alvine evacuations, which at first consist either of undigested food, or light-coloured or greenish discharges. These continue for a certain length of time, and should the child die, no evidence of inflammation of the alimentary canal is revealed beyond a slight softening of the mucous membrane, and enlargement of the follicles, principally of the small intestine. If, however, the disease is further advanced, the character of the stools become changed, mucus and blood are occasionally observable, and the greenish discharges which, according to Dr. Golding Bird, contain altered blood, are more constant. A post-mortem examination of these cases shows that the follicles have become reddened as well as enlarged, many of them are ulcerated, and occasionally the mucous membrane itself has undergone the same change. In the treatment, many practitioners maintain that small doses of calomel exert the most decided beneficial effect; but the weight of authority seems to be opposed to this mode of treatment, most physicians counselling almost entire abstinence from drugs, and in their place advise close attention to those means which act by imparting tone and vigour to the nervous system, such as cold baths, removal to the country, or sea air, port wine, &c., and to these means my friend, Dr. Thomas Buckler, has, for a number of years, been in the habit of adding small doses of charcoal with most decided benefit. Our weekly tables of mortality throughout the summer and autumn, exhibit a very great correspondence between the deaths produced by this disease, and those occasioned by dysentery; and this we can readily realize when we consider that the producing causes of both are almost identical. The effects are found to differ principally from the difference of constitution that exists between children and adults.

The foregoing remarks have been intruded upon your readers merely for the purpose of calling their attention to a certain form of dysentery at a period when remedial measures may be of avail. We do not pretend that the

charcoal and naphtha suggested by us, will prove of as much importance as some other remedies administered for the same end; for, even admitting that sulphuretted hydrogen plays the decided part we have suggested; common alum, or better still, chloride of alumina will be found to answer a much better purpose. And in reality we are but then treating the effects of a cause which has been or is still in existence.

As it now stands, the treatment of epidemic dysentery is absolutely negative, if not decidedly injurious. Dr. Robert Williams in vol. ii. page 563, has collected and recorded the results of upwards of 32,000 cases of this disease, in which the mortality averages as much as one in every nineteen cases. And in the dysentery which prevailed in Edinburgh in 1828, Dr. Christison considers the mortality in eighty cases to have been one in four. In the military hospitals also at Namur in 1831, out of one hundred and seven cases, twenty-six died, or one in four. These cases could scarcely have done worse had all remedial means been omitted, and the cure trusted to the unaided efforts of nature.

It may be objected that sulphuretted hydrogen could not produce symptoms of such importance, because it is well known that quantities of it are taken into the stomach in many mineral waters without unpleasant consequences, but it must be remembered that the quantity of this gas taken into the stomach by drinking a large quantity of sulphuretted water is exceedingly small, and it, in all probability, is quickly destroyed by the chlorine of the common salt almost always present; while, on the contrary, if sulphuretted hydrogen be given off as we suggest it may be, it is liberated at a part of the alimentary canal far removed from any such influence.

Baltimore, *July* 24, 1851.

Art. II.—*Cases of Amputation.* By Jno. Fred. May, M. D., Professor of Surgery in the National Medical College of Washington, and one of the Surgeons to the Washington Infirmary. (With a wood-cut.)

Case I. *Scrofulous Degeneration of Femur.—Amputation at the Hip-Joint.*—In the early part of November, 1850, I was requested by Dr. Morgan, of this city, to visit Richard Eaton, who, he informed me, had been bedridden for many months, from disease of the os femoris and knee-joint. After examining the limb, I advised that he should be removed to the Washington Infirmary, for the purpose of having it amputated, to which he consented, and the following is an abstract of his case:—

Richard Eaton, aged 37, fisherman, entered the Washington Infirmary on the 5th of November, 1850.

In August, 1847, while on a fishing excursion down the river, discovered a small lump about the size of a filbert below the right knee. The swelling was accompanied with much pain, and continued to increase, until the entire joint and contiguous parts of the thigh were very much enlarged.

In March, 1850, it suppurated, and discharged very freely, which gave him some slight relief, but in the month of May he was obliged to confine himself to his bed, from which he has not arisen since that period. At this time there are as many as four deep sinuses extending down to the shaft of the bone, and opening by fungoid orifices on the thigh.

The thigh is throughout enormously enlarged, *to at least twice its natural size*, and is œdematous up to the groin, and very much inflamed in its middle and superior portion.

The knee-joint has long since been destroyed by ulceration, to such an extent, that the foot falls on either side, unless supported. The discharge of pus from the different sinuses and the joint is very great (at a moderate computation at least half a pint a day), and the part presents a most disgusting aspect, from the free generation of maggots in the limb and joint. His pulse is now 106. He has burning in the hands and soles of the feet regularly, as evening approaches. He had an attack of diarrhœa in July last, which was very severe, and lasted fourteen days. Since that time he has not been troubled with it. His digestive organs are now in a tolerably good condition, notwithstanding that he takes from three to six teaspoonfuls of laudanum every night, before he can get any rest.

With the exception of the diseased limb, his whole frame is very much emaciated, and in appearance he is anæmic.

He has a bedsore over the sacrum, about as large as a twenty-five cent piece, deep, and for several inches around it the integument presents an angry and livid colour. In his habits he has always been temperate.

A nutritious diet principally of animal food was ordered for him, and the following powder to be taken three times a day: ℞.—Quiniæ sulphat., ammon. carb., g. camph., āā gr. ij. M. To be taken each time in a tablespoonful of brandy. At night tinct. opii ʒiij, to compose and relieve him. I did not of course think it prudent to stop, although I diminished the opiate, to which he had been so long accustomed. His stomach revolting at the carb. ammoniæ and camphor, they were discontinued in a few days, and five grains of the sesquioxide of iron given with the quinine and brandy.

The bedsore was dressed with the cerat. zinci carb., and pressure removed from it by a circular cushion, and he was placed on an air bed.

This treatment was continued until the 14th of November, when, his condition having slightly improved, I decided on removing the thigh at the hip-joint, for the following reasons:—

1st. The soft parts are diseased to such an extent that it is impossible to get a proper covering for the bone, except in its upper portion, and even here, and as high up as the groin, the tissues are enfeebled and œdematous.

2d. The shaft of the femur can be detected in a very diseased state high up, and I believe from this fact, in connection with the state of the soft parts, and the long duration of the disease, that the cancellated structure of the entire bone is involved, and my colleagues concur with me in this opinion.

The patient, aware that he could live but for a few weeks, was perfectly willing to submit to the operation, though told that he might, in his debilitated condition, die on the table.

The operation was performed on the 14th of November, in the presence of the medical class and a number of professional gentlemen, in the following

way: The patient in a state of complete anæsthesia from chloric ether, was brought into the amphitheatre, and laid on a narrow table, the nates projecting well over its edge. The artery was compressed by an assistant with the thumb against the pubis. The limb (which from its size required to be supported by two assistants) was then slightly raised, and flexed upon the pelvis, so as to relax the muscles on the anterior and upper part of the thigh. The testicles being drawn well upwards out of the way, and the sound limb to the opposite side, a long and narrow one-edged knife nearly twelve inches in the blade was then introduced, a little above the *tuberosity* of the *ischium*, carried as near the neck of the bone as possible, and pushed out on the opposite side, about one inch and a half below the *anterior superior spinous process of the ilium*. A flap between six and seven inches long was now cut downwards, from the front of the thigh. The knife was of course passed much beneath the femoral vessels, and they were consequently not divided until the lower edge of the flap was being cut; this enabled an assistant to pass his hand into the upper part of the incision, back of the knife, and thus to grasp and securely compress the femoral artery *before* it was divided by the passage of the knife downwards. This flap was now raised and drawn forcibly upwards by the same assistant, the femoral artery being still so securely held by him that scarcely a drop of blood escaped from it or its branches. To prevent the fingers from slipping, a soft piece of rag was held against the cut surface. The thigh was now abducted and forcibly depressed by the two assistants having charge of it, so as to throw the head of the femur forwards, and from the acetabulum as much as possible, and the knife was carried across the capsular ligament, until it was freely divided. The head of the bone now started from the acetabulum, the round ligament was divided, the knife passed behind the head, and a posterior flap cut a little longer than the anterior. As soon as the limb was removed, the vessels in the posterior flap were compressed by sponges held against them, until they were separately tied. Ligatures were applied to them first, and then the femoral, the profunda, and smaller branches in the anterior flap were secured. Ligatures were applied in all to twelve arteries.

Hemorrhage having been completely arrested, the edges of the flaps, on account of their great size and weight, were approximated by four points of the twisted suture, with broad adhesive strips in the intermediate spaces, and water dressing was applied over the wound.

Not more than eight ounces of blood were lost in the operation.

The operation itself was performed in half a minute; and I was most ably assisted in it by my colleagues, Professors Miller, Johnston, and Stone, and Drs. Wotherspoon and Coolidge of the U. S. Army, to whom my thanks are due for the very important aid which they rendered me.*

The patient did not evince the slightest consciousness during the operation, and on being told, when he awoke, that the limb was removed, he expressed great surprise. The wound being dressed, he was removed to his bed, and

* Immediately after its removal the bone was sawed through longitudinally by Prof. Stone, and the entire cancellated structure extending through the trochanters, the neck, and the head, was found to be very much softened (cheesy) and filled with pus. The external table in this the upper third of the bone did not seem to be much involved, though below it was much affected, but the cancellous portion was throughout a mass of disease. The cartilages covering the head and lining the acetabulum were smooth and healthy in appearance. The soft parts were infiltrated with serum throughout the whole limb, which continued to ooze from it very freely for many hours after its removal. The muscles were pale and flabby, and in the lower half of the thigh they were blended together and disorganized.

the simple water dressing was ordered to be continued, and four teaspoonsful of tinct. opii were given to him at about 3½ P. M.; this being about the usual quantity which he was in the habit of taking, before he entered the Infirmary. 8 P. M. Pulse 98; not having been composed by the first dose of laudanum, ʒiij more were given.

November 15*th*, 10 A. M. Slept four or five hours during the night, and feels better; spirits good; pulse 96; took for breakfast tea and toast, and a soft boiled egg. Has been a great smoker before and during all his illness, and asks to be allowed a cigar—granted; at dinner chewed a few mouthfuls of beefsteak, and took some coffee and dry toast; dry toast and tea for supper. 9 P. M. Pulse 104 to 106. Soft compresses soaked in warm water, ordered to be applied to wound every few hours, and covered with oiled silk, to prevent too rapid evaporation. Bedsore dressed with the cerat. zinc. carb., and over this adhesive plaster. Ordered tinct. opii ʒiij.

16*th*. 10 A. M. Slept again about five hours during the night. Took coffee, dry toast and soft boiled egg for breakfast, and feels better. Pulse 90, soft and regular, and skin moist. Warm water dressing continued, and bedsore dressed as yesterday. At dinner, took a few stewed oysters with a cup of coffee and dry toast, and smoked a cigar. 8 P. M. Pulse 88; wound discharging quite freely; discharge thin, and slightly coloured. Took coffee and dry toast for supper. Ordered tinct. opii ʒiij.

17*th*. 10 A. M. Slept well last night. Pulse 88; same dressing to wound and bedsore, continued. Took out one of the sutures. Took same breakfast as yesterday, and with appetite. Wound looks well, and union appears to have taken place in a large portion of it. For dinner, chicken soup, and a small piece of boiled chicken, which he desires. Has had no passage from his bowels since the operation. Ordered ol. ricini ʒss; mist. camph. ʒij; aq. menth. q. s. M. Ft. haust. 7 P. M. Has had two healthy looking evacuations from bowels. Urine clear and healthy looking. Pulse 96; continue iron, brandy and quinine. At bedtime tinct. opii ʒiij.

18*th*. 10 A. M. Has slept well. Pulse 86; tongue moist and clean. Took same breakfast as yesterday. Removed remaining sutures, and applied fresh adhesive strips to sustain the edges of wound. Free discharge from it. Same dressing continued. Ordered half a pint of oysters for dinner. 8 P. M. Pulse 86; some pain in stump. Ordered tinct. opii ʒiij.

19*th*. 10 A. M. Pulse 100; has not slept well, but took his usual breakfast with appetite. Discharge from wound free, thin and brown. Same dressings continued. 8 P. M. Pain in stump; give ʒiij tinct. opii. Pulse 86; spirits good. Had a healthy and natural evacuation from bowels in the afternoon. Eat for dinner to-day two roasted Irish potatoes, and a small piece of roasted chicken, and smoked during the day two cigars.

20*th*. 10 A. M. Has slept some and looks better. Pulse 86; took his usual breakfast, only substituting tea for coffee. Wound discharges very freely. Same dressings to it continued. Ordered for dinner, half a pint of stewed oysters, with roasted potatoes, and allowed two cigars during the day. 8 P. M. Considerable pain in stump. Pulse 84. Ordered tinct. opii ʒiij.

21*st*. 10 A. M. Has passed a bad night, very restless and starting in his sleep. Countenance expressive of much suffering. Pulse 100; very free thin discharge from wound. Four of the ligatures on small vessels in the lower flap came away this morning, and considerable hemorrhage followed. Partially opened the wound, and removed a recent coagulum, and also a quantity of very dark and offensive coagulated blood, that had evidently oozed out soon after the operation, probably from the acetabulum, as it lay in con-

tact with it. Arrested the bleeding, which was quite free, and proved to be from the ischiatic artery. Re-applied water dressings, and ordered tinct. opii ℥iij. 8 P. M. Pulse 108; has taken his usual supper, and has a small stool to-day. Stump hot; apply cold water dressing.

22*d*. 10 A. M. Has had a good night. Pulse 102 to 104; eat his usual breakfast with relish. Stopped the brandy to-day, and ordered in its place a wineglassful of London brown stout, with five grains of protocarb. ferri, Vallet's (in place of the sesquioxide and quinine, which he has been taking), three times a day. Half a pint of stewed oysters for dinner, and may smoke his cigars as usual. 8 P. M. Pulse 102 to 104; easy, took his meals with a good relish to-day, and says he feels better and stronger. Ordered tinct. opii ℥iij; and ℥ij more to be taken in the night, if restless, and unable to sleep. The additional dose was allowed, because, for the two or three nights past, he has not been able to sleep as well as usual.

23*d*. 10 A. M. Slept well after taking the second opiate, being very restless before. Discharge from wound more consistent and healthy. Allowed for dinner a tender piece of beefsteak and two potatoes, and during the day two cigars. 8 P. M. Pulse 98; has had a very comfortable day, and is in good spirits. Tinct. opii ℥ijss, and a smaller dose to be repeated late if necessary.

The treatment which is here given, for the first nine days after the operation, was continued with slight variations for the four succeeding weeks. The last ligature came away on the 14th of December. On the 25th he sat up in bed, and on the 29th in a chair, and was wheeled about the room and passage. On the 31st of December, the stump was almost entirely healed, and he was able to sit up a couple of hours at a time, and on the 1st of January, he moved about the room on crutches, for the first time. From this period, he improved more rapidly in flesh and strength, and he left the Infirmary on the 26th of January. On the 17th of February I called at his house, and found that he was out, and able to attend to business in which he is at this time, July 18th, actively employed, and supporting by it a large family. The stump continues to be perfectly sound, and he says that his health is as good as it ever was. In all respects, he presents the appearance of a strong and vigorous man.

The preceding case is a striking illustration of the recuperative power possessed by the human system, in its recovery from the very lowest degree of prostration and disease, as soon as the cause which had produced this state was removed.

Every surgeon of experience must have occasionally witnessed the extraordinary reactive power which some constitutions manifest, when old or chronic sources of irritation are removed from them. A knowledge of this fact alone, encouraged me to undertake the foregoing operation, upon a patient so enfeebled and exhausted by protracted irritation, and the wasting discharges attendant on it,* that it hardly seemed possible he could live, after amputation at the hip joint; the most extensive mutilation to which the human

* The quantity of pus discharged from the limb I have stated to have been, at least, half a pint in 24 hours. The students in the Infirmary, who daily superintended the dressing of the part, have stated to me the amount much greater than I have reported it. I am sure from my own observation, that the discharge as reported, large as it may seem, falls below the amount of pus which the man daily lost.

system can be subjected. But knowing well that all shock to his system could be avoided by the wonderful agency of anæsthesia, and believing that the wound, however formidable and extensive, if he survived its immediate effects, could not be more oppressive to him than the mass of disease with which he was encumbered, were the main grounds upon which I based my hopes for the success of the operation.

During the treatment, I had to contend with two difficulties of a very serious character. One, the prevention of the sloughing over the sacrum, induced by pressure, and his emaciated state. For the first four weeks after the operation, it required the most constant attention to prevent the extension of this ulceration, and he often suffered more from the burning and pain at this point, than he did in the wound itself. The other difficulty to which I have alluded, was the formation of an extensive abscess in the groin, which burrowed downwards, until I was fearful effusion into the abdomen would take place. This commenced on the 24th of November, by a slight swelling about an inch external to the femoral artery, which I opened freely as soon as fluctuation was manifest. But the abscess continued to extend internally, and towards the femoral artery, forcing me to divide at different times, the several broad muscles of the abdomen to evacuate its contents, until finally, nothing but the peritoneum itself seemed to interpose between it and the cavity of the abdomen. But this barrier, though slight, remained intact, affording a beautiful illustration of the capacity of the delicate serous membrane to resist the most profuse and protracted suppurative action, for although the part discharged freely and continuously for weeks, it finally granulated and closed.

It will be observed that, from the commencement, I placed the patient upon a most sustaining treatment; that I allowed him animal food and stimulus freely, both before and immediately after the operation, and that it was continued during the entire treatment of the case. He took daily his brown stout and iron, and beefsteak was the principal article of food at his dinner, while the stimulus of smoking, to which he had been so long and so freely habituated, was not withheld from him. Nor was it deemed prudent to discontinue the opiate, which daily use had rendered indispensable. It was given to him freely every night, as sleep without it was impossible, and without sleep he must soon have sunk. As he improved in strength, the quantity of the opiate was gradually diminished, for I find, on reference to my notes, that on the 17th of December, the nightly dose of laudanum was reduced to ʒi, and on the 2d of January, to gtt. 40, and before he left the Infirmary he had entirely dispensed with its use. It is a little strange that, under the large doses of opium he took, the assimilation of his food should have gone on so well, for the integrity of his digestive organs continued, most fortunately for him, unimpaired throughout. His appetite was good, his digestion excellent, and, after the first two or three weeks, the evacuations from his bowels were regulated almost daily by nature.

A few words in regard to the manner of performing the operation.

There is, perhaps, no amputation which counts more methods in its performance than that at the hip-joint. No less than nineteen have been proposed by different surgeons. They may all, however, be classed under the flap, the circular, or the ovalar method. That which I selected was the double flap operation (the anterior and posterior flap), as recommended by Béclard with a slight modification of my own; viz., that of introducing the knife at the inside just above the tuberosity of the ischium, instead of at the outside, below the spinous process of the ilium.

When a surgeon can select his operation at the hip-joint, I think this method is decidedly preferable to any other that has been proposed, for the following reasons:—

First. From the facility and security with which hemorrhage can be commanded. Many surgeons of eminence,* in view of the great danger from this cause, recommend tying the femoral artery before performing the amputation, and thus complicating it by a double operation. Either this must be done, in the lateral flap, the circular, or the oval methods, or else the operator must rely exclusively on compression of the artery, over the pubis, by an assistant. Now in an operation so formidable, so near the trunk, and in which so many large vessels are divided, I think there is some hazard in trusting to compression alone, for a change of position on the part of the assistant, or of the patient, might be fatal to him. But in the antero-postero flap operation, the femoral artery not being divided until the lower edge of the flap is being cut, the artery is caught and securely compressed, *before* it is touched by the knife, by the assistant, who stands ready to raise the flap, and thus there is double security against hemorrhage from the main artery of the limb, or its branches. It will be noticed, that I feared hemorrhage so little from the anterior flap, that I tied the vessels (though comparatively small) in the posterior flap first, originating as they do from the interior of the pelvis, and consequently not being amenable to compression.

Secondly. This operation can be performed with greater celerity than any other mode of amputating the hip-joint.

I admit that rapidity in the performance of a surgical operation, as a general rule, is a matter of secondary importance, and in most cases the correctness of the advice of Sir Charles Bell, in his remarks on the operation of lithotomy, must be admitted, "To pay no attention to fools with watches in their hands." But in amputation at the coxo-femoral articulation, celerity *is* of great importance. The extent of surface divided is so great, and the vessels (independent of the femoral) so numerous, that any delay or bungling in the operation might, and probably would, compromise the life of the patient. I have no doubt that it has happened more than once, that he has died on the table from hemorrhage, when the shock to the system has been made to bear the blame.

* Larrey, Delpéch, Roux, Blandin, &c.

By Béclard's method the operation may be done in fifteen seconds as easily as in thirty. I have repeatedly performed it on the subject in that time, and but for a slight delay, caused by the malposition of the patient at the moment of disarticulation, the operation in the present case I am sure could have been done in half the time that it occupied.

I find that the mode of operating as I have described it, is usually ascribed to Liston, by English authors. It is true that this great and original surgeon has described the operation in his *Elements of Surgery*, and he twice, according to Mr. Fergusson, performed it on the living, though with an unfortunate result in both cases; but by all French authors the operation is described as Béclard's, and from the examination which I have given to the subject, I think that the credit of it, if credit there be, is due to the French, and not to the English surgeon.

The form of the stump in Eaton's case is as perfect as I could desire. It speaks, however, for itself, from the accompanying cut, executed from a Daguerreotype taken on the 18th of July, 1851.

Case II. *Scrofulous Disease of Knee-joint with Necrosis of the Shaft of the Femur. Amputation near the Trochanter.**—Thompson, aged about 20, entered the Baltimore Infirmary with scrofulous degeneration of the knee-joint far advanced, and which seems also to have extended to the inferior half of the os femoris.

The disease is of long-standing, and the patient in his general appearance exhibits all the marks of a strumous constitution. The knee is very much enlarged, and all motion in it has long since been lost. The swelling also extends to some distance up the thigh, on the lower portion of which, and also about the knee, several fistulous tracts exist, through which a probe can easily be passed in different directions down to the diseased bone. The patient is in a hectic state, and much exhausted and emaciated by night-sweats and occasional diarrhœa.

He suffers great pain in the hip, especially as night comes on, and he says that a surgeon of eminence, who has examined his case, has advised him not to undergo amputation from a belief that the hip-joint itself is diseased. After a minute examination I feel satisfied that the articulation above is not affected, and that the pain felt there is purely sympathetic. There is neither swelling nor tenderness on pressure, however firm it is made, about the joint, and the free motion of the thigh does not augment the pain, and the soft parts in the upper portion of the thigh present a perfectly healthy appearance. I, therefore, advised amputation. But the patient was unwilling to submit to it; in fact he positively refused his consent, being influenced in his decision by the opinion which had been given him of the articulation at the hip being in a diseased state. He remained, however, an inmate of the Infirmary for several months, gradually declining in strength; and finally, the symptoms about the hip not having increased, he expressed a desire to have the limb removed.

This was accordingly done. Believing that the shaft of the femur was to a considerable extent involved in the disease, the first incision was made about the middle of the thigh by the circular method, the artery being compressed by the thumb of an assistant over the pubis. On reaching the shaft of the bone it was found to be very much hypertrophied and rugous, and the incisions, therefore, were extended upwards until a point was reached where the bone presenting a healthy appearance, it was sawn. This was about an inch below the trochanter minor.

The soft parts were dissected from the limb soon after its removal, and a very large and dark-looking sequestrum was found projecting from the shaft of the bone a little below its centre. It was firmly embraced by the new bone which had formed around it, and from which it projected about an inch. The upper portion of the bone where the saw was applied appeared to be in a perfectly healthy condition. The parts concerned in the knee-joint were so blended together and destroyed, that it was difficult to detect any part of its structure; and the muscles for some distance above it were pale and flabby, and the cellular tissue filled with serum.

The patient did not lose in the operation more than the average quantity of blood in amputation of the thigh, but he bore it badly. His pulse became very rapid and feeble and continued so for several hours afterwards. In fact there seemed to be great danger that he might not survive the immediate shock of the operation. The following are the minutes of his case for some days subsequently.

* This case came under my care while I was one of the Surgeons to the Baltimore Infirmary.

Wednesday, 1 P. M., soon after the operation. Pulse 140, feeble, and very much depressed in his looks. *Evening.*—Pulse 135. Restless, and great pain in the stump; countenance still depressed and anxious. Ordered acetat. morph. gr. ¼ every hour until rest is produced.

Thursday.—Slept very little during the night. Pulse, however, not quite so rapid. Slight diaphoresis. Tongue moist and clean. Slight spasms in stump, and some pain in back. Fullness about abdomen. Ordered sulph. sodæ ℥ss, and repeat the dose if it does not move the bowels during the day. Barley water and chicken broth for nourishment. *Evening.*—Pulse 120. Considerable pain in stump, and great restlessness. Ordered acetat. morph. gr. ¼, and to be repeated every hour until composed.

Friday.—Has had several hours sleep during the night, and a small evacuation from the bowels. Pulse 102. Tongue moist and clean, and gentle diaphoresis. Has still much pain in the back and stump, and some pain over abdomen, which is tender on pressure. Ordered an enema of castor oil ℥j, and flaxseed tea Oss; and to be repeated if not effectual. May take barley water, chicken broth, and toast. *Evening.*—Has had a free passage from the bowels, and feels a little better. Has slept some through the day. Pulse 106. If restless and in pain to take acetat. morph. p. r. n.

Saturday.—Slept some during the night, and is more free from pain. Tongue clean and moist, and pulse 100. Continue same nourishment. *Evening.*—Suffers still less pain in stump and back, but skin hot and dry. No inclination to sleep. Pulse 108. Ordered Pulv. Doveri gr. v., and to be repeated p. r. n.

Sunday.—Rested by dozing through the night. Tongue still looks well, and pulse 106, with gentle diaphoresis. *Evening.*—More tranquil; though pulse 112. Having had no evacuation since Friday, ordered sulph. sodæ ℥i to be taken early in the morning. If restless and in much pain, black drop gtt. xij.

Monday.—Has slept tolerably well through night. More tranquil and more free from pain. Tongue slightly furred in centre, but moist. Pulse 108, and soft. Continue same diet, and ordered an enema, the purgative not having had the desired effect. *Evening.*—Has had two dejections. Slight diaphoresis. Pulse 110, 112.

Tuesday.—Has slept well. Tongue and skin moist, and pulse 98. Wound has united throughout, except a small opening at inferior angle, where the ligatures pass out, and from which a healthy, though slight, discharge of pus takes place.

The patient's condition daily improved after the first week, the minutes of which are here given. And he recovered entirely, and left the Infirmary in about seven weeks well, and having become quite stout before his departure. I attended him for an attack of gonorrhœa soon after his return home.

I have given a report of this case, as possessing, I think, some interest, from a combination of the two diseases in the same bone, viz., extensive necrosis of the shaft with articular caries, and destruction of the joint; both evidently the result of a strumous habit. On account also of the amputation itself, which was performed high up, the bone being divided near the trochanter minor; but more especially as fairly illustrating, when compared with Case I, the great importance of preventing by an anæsthetic agent, the shock of a severe surgical operation upon a debilitated frame.

In Case I, the patient was thoroughly etherized, and it is a remarkable

fact that the pulse, which was counted accurately a short time after the amputation, and after the effects of the ether had subsided, was precisely the same in frequency as it was a few hours before the operation took place; in both instances being 102. The man's system had, in fact, been subjected to no shock, and his condition and appearance did not indicate that he had undergone the most severe of all surgical operations. I have no hesitation in attributing, in a great measure, the success in this case to that greatest discovery and blessing of modern surgery, etherization; for I do not believe the patient could, in his prostrated state, have sustained the shock that would have occurred from amputation at the hip-joint; the removal (in his case) of more than one fourth of the system.

In Case II, no anæsthetic agent was used, as this discovery had not been made at the time the amputation was performed; and although the patient was a younger man and less enfeebled by disease, and the operation itself less formidable, yet its immediate effects were such, from the severe shock to the system, as to excite the strongest apprehension of an early and fatal issue, which, fortunately, however, was not realized.

Case III.—*Compound Fracture of the Leg.—Tetanus.—Amputation of the Thigh.*—C. Fitzgerald, aged 20, was brought to the Infirmary on Saturday evening, December 31, 1850.—On Thursday the 29th, at about 2 o'clock, P. M., he fell from a scaffold, and in the fall was struck on the leg by a heavy piece of timber, which produced a very bad compound fracture of both bones of the leg. A lacerated and gaping wound extends from the tubercle of the tibia six inches downwards, exposing the bone in the greater part of its extent, with great contusion of the soft parts.

The tibia is comminuted, and, at the time of the accident, the upper fragment projecting from the wound, about an inch of it was removed by a physician in the country, in order to effect reduction. A considerable piece of the bone was also picked up from the ground where he fell. When brought to the Infirmary he was suffering extremely, having been conveyed thirty miles from the country on a litter.

His friends were informed that there was no prospect of saving the limb, but that he was then in no condition to undergo amputation. He was at once placed under the influence of chloric ether, and thus without pain removed from the litter to his bed, and the limb rendered as comfortable as possible by splints loosely applied, a light poultice and the swinging apparatus. Pulse 112, 114; jerking and full. Ordered an opiate every hour and a half until composed.

January 1*st. Morning.*—Has passed a tolerably good night. Pulse more calm, 100. Ordered sulph. magnesia ℥ss, and cold water dressing to limb. Light broth for nourishment. *Evening.*—Pulse 100, full and jerking. Bowels have been opened, but skin hot and dry, and restless. Ordered ℞. Liq. acetat. ammon. ℥ij; spt. æther nitros. ℥i; sol. citrat. morph. ℥i. M. Three teaspoonsful every two hours till composed. Lemonade for drink.

2*d. Morning.*—Passed a comfortable night, and countenance looks better. Pulse 88, soft, and skin moist. Continue chicken water and tea and toast for nourishment. *Evening.*—Pulse 94, 96, and more febrile. Ordered same mixture as was prescribed last evening, to be taken every two hours till composed.

3*d*. *Morning.*—Has passed a good night, sleeping well, and feels much better. Pulse 90. Ordered sulph. magnesia ℥ss, and continue same diet. *Evening.*—Has had no operation from the purgative. Pulse 100. Ordered an enema to be given early in the morning, if the bowels are not opened by that time. Composing draught to be given and repeated, if it does not produce sleep.

4*th*.—Slept well, and has had a good evacuation from the bowels. Pulse 84.

5*th*.—Passed again a good night, and wound discharging freely. Pulse 75. Has had a natural stool. Being restless toward evening, ordered composing draught.

6*th*.—Feels quite comfortable, and pulse 75.

7*th*.—Has passed another good night, sleeping well. Pulse 76.

I had decided on removing the limb to-day, but the morning being very tempestuous, I concluded to defer the operation until the morrow. On asking, however, to look at his tongue, I found that he did not protrude it as well as usual, and on requesting him to do so, he said he could not open his mouth so well. I questioned him particularly, to ascertain when he had *first* discovered this difficulty. He is very positive that he first observed it at breakfast this morning; say about three hours prior to my visit. There is no pain or tenderness about the epigastrium, and no muscular rigidity anywhere, except that alluded to. There is some soreness about the condyles of jaw, when he attempts to open the mouth.

I decided on immediate amputation, as it was a fair case to test its effect in a case of threatened tetanus, from the short time that the symptoms indicating it had become manifest. But at the same time, my entire disbelief of its efficacy in arresting this disease, was fully stated to the class.

The patient was thoroughly etherized, and the thigh then removed at its lower third by the lateral flap operation. Though placed completely under the influence of chloric ether, and totally insensible to pain, it was yet observed that there was not the least relaxation of the jaw during, or after the operation. The patient was removed to his bed from the amphitheatre, in a state of complete anæsthesia, in which condition he continued for fifteen minutes, or more, after his removal. On awakening, he said he was entirely unconscious that the limb had been amputated, but he now complains of great pain in the leg. The stump was not permanently dressed for a couple of hours, being simply closed and covered by a wet towel. No hemorrhage having occurred from it in this interval, it was brought together by one suture and adhesive plaster, and the water dressing applied to it. About eight ounces of blood were lost in the operation.

The difficulty of swallowing, and of opening the mouth, increased rapidly after the amputation, and the pain in the leg also grew more severe, and I have never seen a case of tetanus so rapidly and violently developed as was this. He was again etherized, and tinct. opii given to him in large doses, and in succession, all the most active remedies, including the tobacco enema, and the cannabis indica, were resorted to. Great pain and rigidity about the epigastrium soon took place, with violent spasmodic action of the voluntary muscles, which quickly resulted in complete opisthotonos. At nine o'clock in the evening, he could not swallow anything, and the spasms occurred every half hour, with horrible distortion of the features, and profuse perspiration. In the morning, the spasms had increased in frequency to every ten minutes, and the body was completely bowed backwards by them. Nothing seemed to give him the least relief, and he died at 11 A. M., terribly convulsed, but with his mind clear to the last moment, only twenty-four hours after the amputation of the limb.

Few surgeons, I presume, have much confidence in amputation, as a means of arresting acute and traumatic tetanus, as the results in such cases have been generally unsuccessful; and yet, I felt justified in the above case in resorting to it, for amputation of the limb had already been decided upon before any symptom of tetanus had occured, and the disease being in its incipient stage, it afforded me an opportunity of fairly testing a measure, which has been tried and sanctioned by high authority, both in military and civil surgery. So far from mitigating the disease, it seemed to hurry it on with frightful rapidity to a fatal termination; for, as I have remarked, before the operation the symptoms were very slight and incipent, whilst after it, they were in a few hours at their acme, and so intense as to produce death in an unusually short time.

In regard to the influence of anæsthetic agents over this disease, I believe their effect to be only transient and mitigating.

I had already, before the occurrence of the present case, fairly tried chloroform in acute tetanus, but with no other effect than a mere temporary suspension of the spasm, its return invariably taking place as the anæsthetic influence subsided; and I am inclined to believe that those cases of tetanus which have been occasionally noticed, as having been successfully treated by chloroform or ether, belong to the chronic or idiopathic form, which, we know, not unfrequently terminate happily, when only the ordinary remedial measures are used.

I could make no autopsy of the case, as the friends removed the body to Baltimore for interment.

Case IV. *Idiopathic Mortification.—Amputation of the Legs.*—T. Ingraham, coloured, aged 34, waterman, entered the Washington Infirmary on the 1st of December, 1849, with both feet in a state of mortification. From the natural stupidity of the man, it is difficult to ascertain much of the preceding history of his case. He states, however, that he was attacked with cholera in the latter part of the summer (the month of August), which left him in a very weak condition. That in the latter part of September he first noticed small discoloured spots on the toes, which gradually enlarged until both feet became almost entirely covered with them. He admits that he has been a regular drinker; in fact, from his own account, I think he has been decidedly intemperate in his habits. Before he was brought to the Infirmary he was living in a low hovel, deprived of the common comforts and necessaries of life. The disease has extended equally in each foot, that is, to about an inch from the malleoli, where its progress has been arrested, and where the sulcus of demarcation between the dead and living parts is distinct and well marked. The sloughing is uniform, every portion of the feet below the line of elimination being in a state of complete sphacelus. The mortification is of the humid form, and the discharge is free. There is great pain in the extremities; his pulse is rapid and feeble, 120 to 125 in the minute; and the tongue is coated with a brownish fur. From the free and long-continued discharge and want of rest, he is much exhausted, and evidently not in a favourable condition to undergo amputation.

He was at once ordered a nutritious diet (beef soup) to be taken freely, and

one of the following powders every four hours in two tablespoonfuls of brandy: ℞. Ammon. carb., quiniæ sulphat., g. camph. āā grs. ij. M. An opiate at night to ease the pain and give him sleep. To the feet flaxseed poultices. Under this treatment his condition improved in a short time; the pulse becoming stronger and less frequent, and his rest at night less disturbed. On the 4th of December I removed the left leg a little below the point of election. He was thoroughly etherized for the operation, and in order that he might lose as little blood as possible, which he could but poorly afford to spare, the artery was compressed by a tourniquet applied in the popliteal space.

The limb was amputated by the double flap method, the principal flap being cut from the posterior part of the leg, and a small one in front.

The patient was unaffected by the operation, being anxious to know which limb had been removed, when recovering from the anæsthetic state.

I deemed it most prudent to defer the amputation of the other leg for a few days. It was, therefore, postponed until the 11th, seven days after the first operation. It was then removed at exactly the same point and with the same precaution as the first. The patient's condition improved rapidly after the amputations, and both the stumps were healed by the 8th of January, 1850. During the after treatment, the brandy and powders given when he first entered the Infirmary were taken by him regularly three times a day. He left the Institution on the 23d of February well and able to move upon the stumps, which have since remained perfectly sound, and enable him at present to go about with considerable facility.

An examination of the parts was made by my request soon after they were removed; at which, however, I was unable to be present, and the gentleman who made the examination then attached to the Infirmary, soon afterwards left Washington for a distant residence. Unfortunately, not having received from him, before his departure, notes of the state in which the arteries were found, I am unwilling to trust to my recollection the verbal statement which was made to me.

But there is no doubt the mortification was produced by a depressed and vitiated condition of the vascular and nervous activity in the limbs, inducing inflammation of a low type.

The man was intemperate in his habits, and had been very much prostrated by a severe disease; add to this improper and insufficient nourishment, and a deprivation of the ordinary comforts and necessaries of life, and we have all the elements requisite to vitiate the blood, and to induce in the vessels through which it circulates inflammation of a low grade, *inflammatio debilis*, as it has very properly been called; which, by obstructing the passage of the blood through the more remote and naturally weakest points of the system, would easily account for their death.

Under such circumstances it was to me a matter of some surprise, that the healing of the stumps progressed so well; for in a little over a month they had entirely healed, with the exception of a very small point on one of them, which in a short time afterwards firmly cicatrized.

No doubt the nutritious and tonic treatment upon which he was at once placed on entering the Infirmary, with a return to the stimulus to which he

had been so long habituated, aided materially in producing this result; and it will be recollected that this treatment was continued until entire cicatrization had taken place. The disease was already arrested by nature when he entered the Infirmary, and the work of elimination, as I have stated, had commenced, but in all probability before it could have been half completed, the patient must have sunk from the constitutional irritation attendant on it.

Case V. *Traumatic Mortification.—Amputation at the Shoulder-joint.*—On the 29th of December I was called on to visit W. B., who had been very severely wounded on the day previous, between twelve and one o'clock, by a fowling piece loaded with a heavy charge of duck shot. The muzzle of the piece was very close to the man at the time it was fired, and the entire load entered about the middle of the left forearm, lacerating the muscles in a shocking manner, exposing both the radius and ulna, and making a wound three inches or more in diameter. It then passed up, entered the inner side of the arm, dividing, as I judged, the brachial artery and large nerves accompanying it, to within two inches of the edge of the axilla, and causing another wound, of at least four inches in length.

The patient was not seen by me until twenty-four hours after the receipt of the injury, as he had been brought forty miles from the country, and he had lost, I was told, a great deal of blood. The hemorrhage had, however, ceased spontaneously, as occasionally happens in gunshot wounds, even where a considerable artery is severed.*

The expression of his countenance was very pale and the features pinched, and he was very restless, with a feeble and rapid pulse, 125 to the minute. The forearm was cold, pulseless and livid in colour, and the arm was also discoloured, its temperature less than on the opposite side, and much swollen. In fact there was no possibility of getting a flap from any part of the arm that was not already doomed by gangrene, rapidly spreading and intense in its action, except about the deltoid region, and amputation at the shoulder-joint I was at once satisfied was *promptly* demanded.

Upon this opinion being communicated to the patient and his friends, a consultation was asked for, which was of course acceded to.

Doubts being expressed by one of my friends who was called in consultation, of the propriety of immediate amputation, the patient positively refused to submit to it; and I left him, satisfied that any delay (even of a few hours) would be fatal to him.

On the next morning (the 30th) I received a summons from the patient in haste. I then found him not only willing but most anxious to have the operation performed, for he said that he felt convinced that unless the limb was removed he must die, and he begged me to amputate it as soon as possible. The forearm had now become much darker in hue and was very cold, and the coldness and discoloration of the arm had also much increased since my visit

* "If the artery be completely divided, a considerable quantity of blood is quickly lost, and the patient may also die. But, in general, syncope or a state nearly allied to it supervenes, and the hemorrhage ceases spontaneously. The same thing occurs where a limb is carried away by a cannon shot, and proves the safeguard of the patient's life; for serious and destructive bleeding has ceased, in most cases, before a tourniquet can be applied; and, indeed, in the greater number of cases they are of no use whatever, for after the hemorrhage has been spontaneously suppressed, it does not in general return; and whenever it does return, the patient's life will certainly be lost, unless proper and effective assistance be at hand."—*Guthrie on Gunshot Wounds, from Chelius, by South*, vol i. p. 372.

the day before. When pressed there was a crackling sensation felt under the finger, and the discoloration and numbness had partially extended to the deltoid region. In fact I feared that gangrene had already invaded the only point from which I thought I could obtain a proper flap at my last visit. The pulse was still 125, and the poor fellow had passed a sleepless night in great suffering. I stated to the patient's friends my belief that the time had passed for amputation, but as he still continued most urgent to have it done, I decided on giving him the benefit of the slender chance that remained.

He was accordingly raised in a chair to a proper position, but he immediately fainted. He was at once placed in a recumbent position again, and brandy and water given to him freely. Having rallied in the course of an hour, he was again raised and held firmly in a chair, and the limb was then removed at the shoulder-joint by Lisfranc's method, as follows: The arm being raised to nearly a right angle with the body, a catlin of medium size was introduced from behind under the edge of the latissimus dorsi muscle (just where it forms the posterior boundary of the axilla), and its point pushed out between the acromion and coracoid processes of the scapula, and a flap about five inches long was then cut downwards and outwards. This being then drawn well upwards by an assistant, the arm was now depressed towards the side, and the knife was carried lightly across the capsular ligament, when the head of the bone starting from the glenoid cavity, the knife was passed behind it, and a flap cut from the inner side corresponding in length to the outer one. In cutting the last flap the edge of the knife was kept close to the bone, so that the brachial artery was not touched until just as the flap was terminated. This enabled the assistant who retracted the first flap (Prof. Johnston) to catch the artery, by passing the hand back of the knife *before* it was divided, as in the amputation at the hip. The hemorrhage was thus securely commanded, and very little blood was lost.

I have mentioned in detail this operation of Lisfranc's for amputating the shoulder-joint, as being, I think, far preferable, both in its performance and its results, to any other method that has been proposed. It may be truly said to be instantaneous, so rapidly can it be executed, and the manner of commanding hemorrhage is so certain that previous compression of the artery above is entirely unnecessary, provided the surgeon can rely on his assistant.

It was observed that there was no contraction of the muscles as they were divided, and that a small quantity of pus oozed from the edge of the external or deltoid flap. The operation was performed about fifty hours after the patient was wounded. He seemed to be much more comfortable after it was over, and said he felt much relieved. At 6 P. M. his pulse had fallen to 106, and he was calmer and in better spirits. An opiate was ordered for him.

On the next morning he appeared to be still better, having passed a quiet night, and his pulse and skin being in a better condition, I felt somewhat encouraged in his case. I did not examine the stump until the third day after the operation, and I then found that my fears for its condition were very soon to be realized. There was no appearance of adhesion in any part of it, and the edges were swollen, puffy, and livid, and the patient evinced very little feeling when it was handled and examined. It was evident that gangrene had attacked it. The discoloration extended rapidly towards the trunk, and the entire flap was soon involved. The man gradually sunk under its ex-

tension, and died on the fifth day after the operation, about sundown, leaving me strongly impressed with the belief that amputation twenty-six hours sooner, and when first proposed by me, would probably have arrested the disease and have saved his life.

The case is a convincing proof of the danger of delay in traumatic gangrene when it is approaching the trunk. Unlike the spontaneous form, its march is too rapid for hesitation. The postponement of action, even for a few hours, may be fatal. I believe it to have been in the present instance. If the surgeon desires time to decide, that time, though brief it be, may decide the fate of his patient.

It will be remarked that in three of the above cases anæsthesia was resorted to, while in the other two it was not. This agent not having been introduced when the two operations referred to were performed, will account for this; for, from the experience which I have had with etherization in surgical practice, I can truly say I would as soon think of amputating the thigh without previously compressing the main artery of the limb, as to perform a difficult or dangerous operation without previously putting the patient in an anæsthetic state. Nay, I am prepared to say further, that so important an element is it to the success of the surgeon, that he ought to decline any operation of magnitude and danger, should he meet with a refusal on the part of his patient to be subjected to its influence.

Fortunately there are few who are not only willing but anxious to be soothed by the magic spell which to the victim robs surgery of nearly all its terrors, and to the surgeon brings pleasure from the knowledge that he inflicts no pain.

Since November, 1848, no other agent for inducing anæsthesia has been used by me but chloric ether, and I want none better. My acquaintance with sulphuric ether and chloroform, when they were first introduced, was by no means satisfactory, owing to my not using either of them with that freedom requisite to produce their effect; and I, therefore, abandoned the subject of anæsthesia entirely. But at the period just mentioned, on my return from a visit to Boston, I was induced to use chloric ether from a conversation upon its merits which I had while there with Drs. J. M. Warren and Hayward, and its qualities for certainty and safety as an anæsthetic agent, as stated to me at that time, by those gentlemen, have since been fully realized by me.

For nearly three years it has been constantly used by me, and most liberally whenever demanded, both in hospital and in private practice, and it has never in a single instance disappointed me.

I have given it at all ages, from the tender infant to the old and infirm man, and from a few moments to more than an hour at a time, and it has in my hands never failed to produce the desired effect, nor been followed by any unpleasant result.*

* The ether which I have used has always been prepared by Wm. B. Little & Co., Boston.

I could not close these remarks upon operations, in which it has borne "so conspicuous a part," without rendering my feeble tribute in praise of the greatest boon that has ever been conferred upon suffering man in the annals of surgery.

Washington, *July* 18*th*, 1851.

Art. III.—*On a rarely observed, but very fatal Effect of Gastro-intestinal Revellents; especially of the Tartrate of Antimony and Potassa, and particularly in the treatment of Pneumonia.*—By Wm. M. Boling, M. D., of Montgomery, Alabama.

There are but few articles of the Materia Medica which exercise so certain a control over any serious morbid state or action, as the tartrate of antimony and potassa does, over inflammation of the pulmonary parenchyma. Its efficiency, I may say, is universally admitted. Unfortunately, however, its value as a remedy in pneumonia, or any other disease indeed in which its protracted use may be required, is diminished by the circumstance of its occasioning in many instances, violent disease of some of the abdominal viscera, which often leads to a fatal result. It is in pneumonia, however, according to my own observation, that the effect referred to is most frequently produced by it, and developed in the most violent and rapid manner; probably, it is but reasonable to suppose, because in this disease its protracted administration is more frequently practiced than in any other. As generally administered, it is not improbable, that the remedy, even in cases in which the ultimate result may be favourable, produces by its contact, more or less irritation of the gastro-intestinal mucous membrane, which gradually subsides, after its suspension, during convalescence. Its visible effect upon the skin, when used locally, might lead to such an inference, and indeed appearances somewhat analogous to this are sometimes observable, not only after death, in the gastro-intestinal mucous membrane, but during life, in the mouth and fauces, as a result seemingly of its use. In fact it is to a revellent effect, resulting from this local irritant action, that its efficacy in pneumonia and other diseases, is attributed by the advocates of the physiological doctrine. It is not, however, this local action, *merely as spoken of and described by the generality of writers*, to which it is my object to call attention at present, but more particularly to an array of symptoms of a much more violent and sudden character, connected seemingly with a metastasis of morbid action, from the thoracic (when administered in the diseases of this cavity), to the abdominal viscera; the result, it may be, of an exaggerated influence of the character mentioned.

Whatever the correct explanation, however, as to the mode in which the effect is produced, the condition itself is one of extreme danger.

There is reason to believe, however, that though in the treatment of pneumonia, the state in question is more frequently induced by the use of tartar emetic, than by anything else, a similar condition is occasionally brought about by other agents administered to such an extent as to produce a high degree of irritation of the gastro-intestinal mucous membrane; and I believe that it is with more certainty developed, under a combination in the treatment, of calomel with the antimonial, than by the latter alone.

Supposing the remedy to have been continued several days, the phenomena referred to, are developed much in the following manner. The patient may seemingly be doing well under the continued use of the remedy; the dulness on percussion, and the frequency of the pulse diminishing; the skin perhaps becoming moist, and the respiration improving. Suddenly in some cases, in others somewhat gradually, the patient becomes restless, the thirst is augmented, the discharges from the bowels are more numerous and thin, the abdomen becomes tympanitic and perhaps tender, the tolerance is lost, and though he may not have done so for several days, he vomits, or makes frequent efforts to do so; the tongue becomes dry and pointed; there is jactitation present, anxiety of countenance, delirium, and perhaps stupor a short time before death. Occasionally jaundice supervenes, and in a few cases the matter vomited bears a close resemblance to that ejected in yellow fever. During the progress of the change, the pulse becomes more frequent, hard, concentrated, small and thready.

The rapidity with which the symptoms mentioned are developed varies a good deal in different cases. I have known instances in which death has taken place in about six hours from the time of the first evident unfavourable change; in every respect, up to that time, the progress of the case being apparently favourable, and the graver symptoms subdued. Oftener the case is protracted to ten or twelve hours, and sometimes to a longer period.

Simultaneously with the changes above spoken of, or, as it were, preceding them rather, a more or less rapid disappearance of the signs and symptoms of the primary disease takes place. From a state of almost complete solidification of an entire lung, with dulness on percussion, and bronchial respiration; in the course of four or five hours, I have found the pulmonary tissue permeable, and the chest resonant and yielding a healthy respiratory murmur; a corresponding improvement in the cough, thoracic pain, difficulty of breathing, &c., proceeding at an equal rate. The rapidity with which this change in the condition of the lung takes place is proportionate to the violence and rapidity of the newly developed abdominal disease.

In any case of pneumonia under the antimonial treatment, although the patient may seemingly have been doing well, the supervention of the slightest tympanitis, with augmented thirst and a tendency to diarrhœa, may be regarded with suspicion, as the probable precursors of a very grave condition;

and I am now led to regard my patient's doom as almost settled, when, in addition to these symptoms, there is a *rapid* instead of a gradual removal of the dulness on percussion, *unattended with the crepitant rale of resolution.* Where a case is closely watched, the latter will be found to precede somewhat the former symptoms of the progressing change; and I have more than once surprised, not only the relatives of patients, but professional gentlemen in attendance with me, by announcing a coming change for the worse, basing my opinion on the physical sign just stated, where everything otherwise seemed favourable; the patient comfortable, and apparently, perhaps, convalescent.

This termination of pneumonia, under the administration of antimonials, especially when given in what would be considered anything like adequate doses by the advocates of the doctrines of Rasori, I am led to believe cannot be of very rare occurrence in the south; for I think that I have seen almost as many patients die of the superinduced or substituted affection as of the primary. And yet the largest quantity for the twenty-four hours, in which I have been in the habit of prescribing the tartrate of antimony and potassa, falls far short of what would be considered a medium dose for the same time, by the generality of physicians of the contrastimulant school. Under the supposition, however, that it not unfrequently occurs, it is somewhat strange that we find so little in the works of authors who have written on pneumonia, especially as treated with antimony according to the contrastimulant doctrine, in which anything like a distinct reference is made to it, much less an accurate account of the condition. Neither in the French nor Italian writers of the contrastimulant school accessible to me have I been able to find any account of it, though in many we find allusion to the mere local irritant action of the agent in question upon the gastro-intestinal mucous membrane. This is more especially, however, the case among the advocates of the physiological doctrine, by whom the curative influence of the remedy in question, in pneumonia, is ascribed to a revellent operation. The condition spoken of by the followers of Rasori as a loss of the tolerance, resembles it in many respects, and I have sometimes suspected that in their descriptions they may have had in view a state identical with that to which I now have reference. If so, however, their delineation is incomplete in several important particulars; and I would especially mention the sudden subsidence of the original disease, with the occurrence of the new train of alarming symptoms. Moreover, no one, I imagine, who has ever observed a well-marked case of the state to which I have reference, even under the influence of a favourite doctrine, could see in it *merely* a general depression of the vital powers somewhat below the standard of health; and, in short, could suppose that the phenomena manifested were not the consequences of actual local lesion of the viscera of the abdomen.

I have been disappointed in not finding an account of it in such of the writings as I have met with, of the Italian followers of Rasori; because, not only from the immense doses in which they are in the habit of administering

the antimonial preparations, but from the similarity of their climate, and diseases generally to our own, in their hands especially, I had been led to suppose it must frequently occur. Owing to the fact, that in the north, the susceptibility of the gastro-intestinal mucous membrane to irritant impressions is less than in the south, it probably occurs less frequently there than with us. One rather mild, but unquestionable case, I find recorded in the *American Journal of Medical Sciences* for April, 1848, by J. F. PEEBLES, M. D. of Petersburgh, Virginia, in a paper calling attention to certain unfavourable effects of tartar emetic. Two other cases are given by B. R. JONES, M. D. of Montgomery, Alabama, in the *New Orleans Medical and Surgical Journal* for September, 1850; in which he particularly refers to it as a result of the operation of antimony.

My own attention, several years ago, was forcibly drawn to this unfavourable action of the tartrate of antimony and potassa, in pneumonia especially, and it was alluded to in a paper on "the treatment of the inflammatory affections of malarious districts," which I published in the *American Journal of Medical Sciences* for July, 1844. Two cases are there given, among others of a different character; and, in regard to one of them, the following remark is made. "In this case, an occurrence took place, which is by no means unusual with us here, in the treatment of acute thoracic diseases, particularly when tartar emetic or calomel is used to any considerable extent, and more especially when they are used in combination; viz., the supervention of gastro-enteritis about the time, or *soon after a considerable amendment has taken place in the original disease.*"

But, though I have been able to find nothing, or but little, that can be regarded as having allusion to the accident in question, where most I expected to find accounts of it, viz., among authors of the school of Rasori, in speaking of the use of tartar emetic in pneumonia, a graphic description of a similar state produced by the continued administration of calomel may be found in the work of Golis on hydrocephalus. "Many times," he says, "I saw, under these large and long-continued doses of calomel, the hydrocephalic symptoms *suddenly* disappear, and inflammation of the intestines arise, which terminated in death. Still oftener, I have observed this unfavourable accident, from an incautious use of calomel in croup; viz., where all the frightful symptoms of this tracheal inflammation, which threatened suffocation, would *vanish suddenly*, and enteritis develop itself, which passed rapidly into gangrene and destroyed the patient."*

Although it is probable, that it is through a local irritant action of the antimonial upon the gastro-intestinal mucous membrane, that the effect in question is brought about; the manner, and circumstances of its development lead not unreasonably to the inference, that a real metastasis takes place; that in addition to that irritation, which the remedy, probably, in almost every in-

* Davis on Acute Hydrocephalus.

stance produces, where it is long used; that, for instance, which it would produce in a healthy subject; there is a superadded morbid action, transferred upon the abdominal viscera, in lieu of the pneumonia, which has suddenly disappeared. It will be remembered, that, generally, it is not till after a partial subsidence of the pneumonic symptoms, that evidences of the gastro-intestinal irritation are manifested. It partakes, then, more of the character of metastasis than revulsion, though an irritant action may have determined it.

Why the morbid action, from which the patient was, probably, to all appearance in no great danger, in the lungs, should prove so frequently fatal when transferred to the abdominal viscera, is a question which naturally suggests itself. Perhaps it may be the suddenness of the invasion. Perhaps the translated morbid action, operating in conjunction with a morbid state, which had already been developed in a high degree in the gastro-intestinal mucous membrane by the remedy, but which, up to the moment of the metastasis, had remained latent, in consequence of the preponderance of the pneumonic inflammation. Perhaps, a greater depression of the vital powers results from an equal degree of morbid action in the gastro-intestinal mucous membrane, than in the pulmonary parenchyma.

Notwithstanding this occasional unfavourable influence of the tartrate of antimony and potassa, I have felt reluctant to dispense with its use entirely in the treatment of pneumonia, in which, otherwise, its efficacy is so great; and, for some time, it has been an object with me to devise some plan of administration, by which, while its favourable operation might be secured, the former effect might be entirely, or in a great measure avoided.

Without entering into any detail or discussion of the various and somewhat contradictory views entertained by different physicians, or sects of physicians, as to the modus operandi of the tartrate of antimony and potassa, I think it may at present be safely assumed that, while its sedative or contrastimulant influence is exerted, after its absorption and commixture with the circulating mass, the unfavourable effects resulting from its administration, to which reference is here made, are consequences of its direct local action upon the gastro-intestinal mucous membrane. To be sure, according to experiments of Magendie, it would appear that its *emetic* operation is secondary to its absorption, and the result of a special affinity for, or action upon, the stomach, while in its transit through the vascular circle; but it would seem a visionary refinement in toxicology, to refer the effects of which I have been speaking to an influence thus exerted, aware, as we already are, of its irritant action upon the mucous and dermoid tissues, when locally applied.

It is not at all improbable, however, that in some rare cases, the revulsive operation of the remedy on the gastro-intestinal mucous membrane may prove favourable, according to the views of Broussais; but, knowing as we do, that other gastro-intestinal revellents exercise no such special control over the phlegmasiæ of the thoracic viscera, as the agent in question, as a general rule, his explanation of its modus operandi will, I am inclined to believe, be deemed

incorrect. On the contrary, when the local effect on the gastro-intestinal mucous membrane is developed in any considerable degree, recovery, even when it follows, is retarded rather than advanced by the circumstance; not only by the additional febrile disturbance, but by the diminished absorption which results in consequence; and that when it occurs in a high degree, it occasions in pneumonia the train of alarming, and so often fatal phenomena.

Assuming then that the sedative effect of the remedy through which its curative influence in pneumonia is brought about, is produced by that which is absorbed; and the deleterious effects under consideration, by that which, remaining unabsorbed, or which is not for a considerable time absorbed—remains long applied in contact with the gastro-intestinal mucous membrane—by what indeed may very properly be deemed a redundancy of the article—that over and above what can be readily acted on by the absorbents, it is manifest that to secure the former and avoid the latter, no more of it should be prescribed than it is probable will be promptly taken up by these vessels, and its administration regulated in such a manner as best to secure this end.

With this object in view, I at first commenced to diminish the dose, although in no case had I ever given it in anything like the quantity recommended by many physicians of the contrastimulant school; nor did I find the efficacy of the remedy less when I had fallen back upon about the quantity advised by many before the rise of the contrastimulant doctrine: say three, four, or at most six grains in the twenty-four hours, than when I gave it in doses twice or thrice as large; but its mischievous effects were infinitely less. It does not necessarily follow because in many cases the larger doses of the ultra contrastimulists are tolerated for the time, and generally without any manifest ulterior mischievous effects, that they are really required.

Besides this reduction of the dose, say for the twenty-four hours, to the smallest possible quantity capable of producing a sedative influence, I have also adopted the plan of giving it in small portions, frequently repeated, so that not more will be swallowed at a time than may be promptly, at once indeed, acted on by the absorbents, rather than in larger portions at longer intervals, by which the mucous membrane would be of necessity subjected to a longer contact with a part of each portion swallowed. The method has seemed to me a bad one, of giving the quantity intended for the twenty-four hours at lengthened, though equally divided intervals throughout this period; but still worse the plan followed by Laennec, in some cases, of giving the entire quantity intended for the twenty-four hours, in but three or four portions, at short intervals, and then omitting it for the remainder of the day. By this method the local or revellent influence of the remedy is induced in the highest possible degree, while the sedative influence is obtained in a degree, perhaps, proportionably lessened. Generally, I give from three to six grains, according to the extent of the inflammation and the grade of febrile excitement present, in the twenty-fours, dissolved in six ounces of water. Of this solution, I give, during the day, a teaspoonful every half hour; but, if the

patient is disposed to sleep, that his rest may not be too much disturbed, twice the quantity every hour during the night. I have not found, as we are led to believe would be the case by some of the followers of Rasori, that the tolerance of these smaller doses is less readily established than of the larger. In some cases, where the attack is violent, in connection with blood-letting and other appropriate measures, with the view of bringing the system as speedily as possible to some extent under the influence of the agent, I venture to give at first one or two doses, say of a third or half a grain each, of it. To favour its rapid absorption, by all means the remedy should be administered in perfect solution, in water alone; and the plan of administering it in combination with mucilage, as of acacia, flaxseed, elm, &c., is eminently calculated to lead to the result it is intended to obviate. Instead of sheathing the gastro-intestinal mucous membrane, or at least of protecting it in this way against the local irritant action of the remedy, such substances favour the latter effect, by retaining the salt for a long time in contact with the mucous surface, in consequence of the obstruction to its ready imbibition, which they present. That absorption should take place, it is manifest that contact is necessary; consequently, nothing can be gained by placing either the absorbing surface, or the remedy to be absorbed in such a condition as to protract the process. Neither do I think the plan is a good one, of giving such fluids in the intervals; though from the universality of the practice, popular prejudice is so strongly set in its favour, that the physician who prohibits them entirely, is in danger, in case of a fatal result, of censure from the patients' friends, for the omission. The pilular is also a very objectionable form of administration; being calculated to lead to a slow absorption, and a protracted contact of the remedy, with a limited portion of the gastro-intestinal mucous membrane; favouring thus a concentrated local action, and the development rather of its topical irritant, than of its general constitutional influence. The form of administration in complete solution, in as large a quantity of water as it is probable will be entirely absorbed in the intervals between the doses, I regard as important.

Although I have had reason to be gratified with the method above recommended of administering the remedy in question in pneumonia, it is more than I am willing to assert, that its noxious operation can be thus, in all cases, entirely obviated.

More recently, with the same object in view, in some cases I have adopted the plan of administering the tartrate of antimony and potassa, in the form of enema, under the impression that its local irritant action upon the rectum, would be unimportant, in comparison with that on the stomach and duodenum; hoping the while, that in adequate doses its general sedative operation might be as well secured. In the use of the remedy, after this method in pneumonia, I generally give about three grains every third hour, with fifteen or twenty drops of the tincture of opium in an ounce or two of warm water; and its controlling influence, where the enemata have been well retained, has

not appeared to me appreciably less, over the febrile excitement, and local morbid action, than when I have administered it by the mouth.

Although the results of my practice from this method of treatment have been highly favourable, one case stands on record in my case book, in which it was principally adopted, calculated to cast a doubt upon its invariable innocuousness. Determining in the commencement of the attack to treat the case principally with the antimonial enemata, I ventured—as I thought I might do with safety, having this intention in view, and as the attack was a very violent one—upon a more free administration of the remedy by the mouth, during the first eighteen hours, than is my common practice; and it is not improbable that it was to this, in conjunction with the action of mercurials administered occasionally by the mouth during the progress of the case, that the metastasis was in reality attributable. Still I could not entirely divest myself of doubt on the subject; but even admitting in this instance an unfavourable operation from the enema treatment, I still rest satisfied of its comparative safety, in contrast with the usual method of administering the remedy by the mouth.

In the case in question, up to the evening of the fifth day, the patient was apparently doing well; the febrile excitement regularly moderating, and the organic disease gradually subsiding. At this time, a *very slight* tendency to tympanitis was discoverable, and a more rapid removal of the thoracic dullness on percussion had taken place, than between any two of my previous visits. The patient expressed himself better, however, and the general symptoms were apparently favourable. It was consequently with no slight surprise on the part of the patient's friends, as well as of a professional friend who, on this occasion, visited the patient with me, that my intimations were received of a probable speedy fatal termination. The signs and symptoms of pneumonia rapidly disappeared; the tympanitis increased; diarrhœa, thirst, restlessness, jactitation, delirium followed by incomplete stupor of short duration, came on, and in ten hours from the time of the first symptom of the approaching change, he was dead.

ART. IV.—*Bernard's Recent Discoveries in Physiology.* Reported by F. DONALDSON, M. D., Baltimore, Maryland.

IN the previous number of this Journal, we called attention to, and we hope, by giving in detail his experiments, established, two of M. Claude Bernard's discoveries; the first, showing the existence of a communication between the portal vein and the vena cava ascendens, by means of which the kidneys secrete from blood which has not passed through the general circulation; the

second, demonstrating that the liver has the prerogative, heretofore unsuspected, of fabricating, within its own proper tissue, sugar resembling very much the ordinary glucose, and in every particular the saccharine matter found in the urine and in other secretions of patients suffering with the disease known as diabetes mellitus. We now propose giving a brief account of the points in the process of *digestion*, which have been elucidated by the same physiologist; and then we will notice his investigations in regard to the *formation of fat* within the body, and independent of the alimentary materials.

There is, indeed, scarcely a department of physiology to which M. Bernard has not, by his experimental researches, made valuable additions; but that of digestion, from its great importance, has been his particular study, and to him, as we shall presently show, more than to any other living physiologist, do we owe the present advanced state of the science in regard to it; not even excepting Dr. Beaumont, the result of whose interesting experiments on the Canadian, Alexis St. Martin, have been so widely diffused.*

Bernard has had this advantage over Dr. Beaumont, that, whereas the latter could only experiment upon the action of the stomach and its secretions, he, by establishing fistulous openings into the stomach and into the ducts of all the secreting or excreting organs, has been able to carry his researches much farther. It was curious enough, to see walking about in the amphitheatre of the College of France, dogs and rabbits, unconscious contributors to science, with five or six orifices in their bodies, from which, at a moment's warning, there could be procured any secretion of the body, including that of the several salivary glands, the stomach, the liver, and the pancreas. The great value of M. Bernard's doctrines is, that they have been arrived at, not like those of many of his predecessors, from ingenious theories, but from actual experiments on the living subject, repeated over and over again, so that on many points they may be said to be demonstrated. Such, certainly, is the view entertained by all who have had the pleasure of witnessing them.

We cannot, of course, in the brief space of this article, enter as fully as we should wish into the phenomena of digestion, much less can we notice the various theories invented to explain them by the older physiologists, beyond what is necessary to render clear the points dwelt upon by our author. One cannot forbear remarking how much time, as well as genius, has been wasted in framing theories in explanation of conclusions drawn from imperfectly observed phenomena, and, indeed, in many cases perfectly independent of all ascertained facts. It has been too much the habit to form conjectures of what might take place in the economy, instead of endeavouring to find out from observation what actually does occur.—Nor was this error confined to men of the age of Hippocrates, who regarded digestion as the result of a *decoction*, nor to those who considered it severally as a *fermentation*, a *putrefaction*, or

* See Experiments and Observations on the Gastric Juice and Physiology of Digestion, by Wm. Beaumont, M. D., U. S. A.

a *trituration*. Even many of the conclusions in physiology of Liebig, profound and ingenious as they certainly are, are worthless to science, for the simple reason that they are so purely theoretical, supported by little or no observation of the living functions themselves.

Before coming to the more prominent points, we propose commencing, as did M. Bernard, with the *saliva* and its agency in digestion, and then proceeding in order with the other fluids connected with the preparing alimentary substances for assimilation.

We would naturally suppose that nothing could be easier than to ascertain exactly the office of a secretion which can be so readily procured from the mouth; and former observers had confined their investigations almost exclusively to the action of the mixed fluid there found. M. Bernard began his by inserting into Stenon's, Wharton's, and into one of the small ducts of the sublingual gland, small tubes, by means of which the several fluids making up the mixed buccal saliva could be examined separately. After which he produced a free flow from these ducts, by giving to the dog a piece of meat, the presence of which caused at once a free salivary secretion. What was most curious to observe was that, during mastication, the flow was almost entirely confined to the duct of the parotid and to the sublingual; whereas, during the motion of deglutition, when the tongue threw the bolus back into the pharynx, the secretion of the submaxillary was the greatest. Each separate secretion, as well as the saliva, as swallowed, was alkaline in its reaction, the acidity of the mouth during abstinence, which is owing to the secretion of the small buccal glands, being neutralized. M. Bernard remarked, he had always found that this, as other alkaline secretions, is best excited by the presence of acids, and the reverse is the case in regard to the acid fluids which flow most freely when alkalies are administered.

The physical characters of the several salivary secretions are very different; that of the parotid and sublingual glands is clear, and as limpid and thin as water, while that which comes from the submaxillary is thick and viscid, resembling in colour and in consistence ordinary simple syrup. From these facts M. Bernard has concluded that the mechanical use of these secretions is not the same—that of the parotid and the sublingual being principally to saturate the food, and thus facilitate mastication; the submaxillary, on the contrary, rendering easy the process of swallowing by its glutinous properties. In these, as in all his other investigations, he was not satisfied with the result of his first essay, but followed it up by others which confirmed it. He made an opening into the œsophagus of a horse, from which he drew the alimentary bolus as it descended, and on weighing it he found that by the imbibition of saliva it had increased elevenfold—showing what a large quantity of saliva was necessary. He next tied Wharton's duct, and found that it required forty-one minutes to masticate, so difficult was it, what previously had demanded only nine minutes; and the mass, when withdrawn from the œsophagus, was covered with mucus and a glutinous fluid, the

interior was dry and friable, and the whole only increased in weight three and a half times. By giving freely of water to the animal to drink, it appeared to promote mastication almost as effectively as did the secretion of the parotid; the quantity of parotidian saliva being in proportion to the dryness and toughness of the ingested substance. If the ducts of the other two glands be tied, there is not the same difficulty in mastication. The water of the buccal mixed saliva is in the proportion of ninety-eight parts in a hundred, the other two being composed of the salts of potash and soda, and of the animal substance *ptyaline*. Thus it is shown that the mechanical use of the secretion of the salivary glands is very important.

In regard to its chemical action, it will be remembered, that Beaumont found that a piece of meat put directly into the stomach through the fistula, was digested fully as well as though it had been first subjected to the action of the saliva. From this fact, which has been repeatedly verified by others, it was concluded that this fluid had none other than its physical action on food. That this is a mistake, can easily be shown by placing cane sugar or any amylaceous substance in a test-tube filled with saliva, and applying heat of 98° Fahr.—when in a few minutes, and, according to Mialhe,* if it be powdered starch in solution, in less than one minute, there will be a transformation into dextrine, and then into grape sugar, and, if permitted to remain longer, into lactic and bituric acids. This may be easily tested by the addition, at the different stages, of the tincture of iodine to the solution—whereupon may be noticed the gradual disappearance of the blue of the iodide of starch, which changes at first to a rose, and then, owing to the complete alteration of the starch as such, the iodine is perceived to have no action at all. From these premises M. Mialhe was led to believe that, as the saliva, owing to a peculiar ferment, had that effect out of the body, therefore, such must be the case in the ordinary process of digestion, and concluded that this fluid completed the transformation of all that class of aliments; but Bernard has since proved the action of the saliva upon amylaceous matter to be very gradual, unless it is reduced to a powder, and is in solution; moreover, any acid placed in contact with it at once destroys its power, so that, as it cannot effect any change when it is mixed with the gastric juice, which is acid, the time is too short for it to have more than a very partial transforming power in the mouth and in the œsophagus. To establish this, M. Bernard killed a dog who had been fed upon potatoes, and, on opening the stomach, he found there the merest trace of sugar, but much unaltered starch, even in the mass passing through the pyloric orifice out of the stomach. This he thought conclusive of the point that, ordinarily, the saliva only acted mechanically in digestion, except in a slight degree upon amylaceous substances—nature having provided another fluid for the purpose of fitting this class of aliment, as well as fat and nitro-

* See "Mémoire sur la Digestion, et l'Assimilation des Matières Amylöides et Sucrées. Paris, 1846."

genized matter for absorption and nutrition. A singular fact, first noticed by M. Magendie,* and confirmed by Bernard, is, that neither the secretion of the parotid, nor that of either of the other glands separately, nor when mixed with each other, have any effect even upon amylaceous matter, but yet, that the mixed saliva of the mouth unquestionably has; from which it would appear that the active principle, whatever it is, that effects the transformation, must come from the small buccal glands. In diabetes, neither in the human subject nor as produced artificially in animals, can any trace of sugar be detected in the salivary secretion. We before noticed, that though the cyanide of potash administered by the mouth could be detected in the other secretions, yet it did not enter into the saliva.

The interesting question arises, as to what is the principle of the saliva, which, when permitted to remain sufficiently long in contact with starch, converts it into dextrine, sugar and lactic acid. Berzelius was the first to isolate, by the addition to filtered buccal saliva of six times its volume of absolute alcohol, an organic substance which he called *ptyaline.* Mialhe, in his memoir before the Academy of Sciences, maintained that the organic precipitate obtained by Berzelius and by himself, had properties analogous to the *vegetable diastase,* which in malt converts the starch into sugar, and that it should be named the *animal diastase.* There was no doubt that such was its action; but was it a substance of a peculiar nature existing only in the saliva? To test this, M. Bernard put other fluids of the body with starch, and, on raising them to the temperature of the body, found that many of them had exactly the same transforming power as the saliva. Such was the case with the water in which dried buccal mucous membrane had been soaked, showing, as he had supposed, that the ptyaline was derived from it. The serum of the blood, a liquid obtained from a cyst of the liver, the mucus from the nose in coryza, or indeed, from any irritated mucous membrane, had precisely the same effect. On giving a starch injection to a patient suffering with a diarrhœa, he found sugar in the stools, &c. From these results, M. Bernard concluded that the fermenting principle of the saliva was not different from some other nitrogenized matters in its action upon amylaceous substances.

The Gastric Juice.—At the commencement of his experiments upon this fluid, M. Bernard made before his class, an artifical opening into the stomach of a dog. He cut through the abdominal parietes in the right hypochondriac region, and, drawing out the stomach with a pair of forceps, he made an incision about an inch and a half in length, into which he introduced a short, wide canula, either end being terminated by a rim resembling very much a button. One of these ends being firmly clasped by the lips of the wound of the stomach, he was enabled to draw the organ near the surface, and fasten the other extremity of the tube to the integuments. A cork put into the external orifice, prevented any liquid from flowing out. In a few days, owing

* See Précis Elément. de Physiol., Paris, 1846.

to the slight sensibility of the peritoneum of the canine race, the animal was well, and the wound around the canula healed, so that the gastric juice could be extracted with perfect ease, when its secretion had been excited by the presence of some alimentary substance; the stomach, as shown by Beaumont, not producing any during the time of abstinence. The operation required but a few minutes, and to show how little uneasiness the presence of such an opening caused the poor animals, a dog was shown on whom a similar operation had been performed two years previous, and who had from that time furnished gastric juice whenever wanted. He appeared to be in perfect health.

Bernard has verified, as had previously M. Blondlot,* many of Beaumont's conclusions in regard to the action of the stomach and of its secretions. Their observations are important, as showing the identity of the digestive juices of the dog with that of the human subject. We forbear mentioning many of these results, which are doubtless familiar to our readers.

The gastric juice can be seen exuding from the mucous surface under the coat of mucus always found there, like the perspiration from the skin; but as to what it is exactly that secretes it, there appears to be considerable question. Bernard is inclined to believe that it is furnished by the corpuscles discovered by Gruby, which are very numerous, and exist only in the stomach; they are surrounded by a vascular network, and are found between the villosities. There are also two kinds of small glands perceptible in this mucous membrane—one a slight tube resembling the finger of a glove; the other with a bulb, which terminates in a narrow orifice at the gastric surface. Some have thought that the former of these furnish the mucus, and the latter the gastric juice. That the gastric juice comes more particularly, if not exclusively, from the portion of the mucous membrane around the pyloric orifice and from that near the liver, is proved by Bernard in a very pretty and simple experiment. On introducing into the jugular vein of one side some cyanide of potash, and into the other the proto-sulphate of iron, both in solution, they pass through the circulation side by side without combining, thus revealing the valuable fact that, though substances have a great affinity for each other, yet that no union of them can take place while they remain in the blood-vessels, probably because the heat evolved from a single or double chemical decomposition taking place in the circulation would be too great for the economy, as we see nature making use everywhere in the alterations and destructions in the animal system of mild ferments, and not of strong chemical agents. This fact of itself is one of great importance in demonstrating how unfounded are many of the ingenious theories of the chemical action of remedies after they have been absorbed. These substances, however, when brought into contact in the free secretions, unite at once where there is air. M. Bernard noticed, on examining the stomach of a dog whose jugulars he

* Traité Analytique de la Digestion.

had injected as above, that the mucous membrane of the stomach was of the normal colour, except near the pylorus and over the hepatic portion, where it was of the deep blue of the prussiate of iron, the result of the union of the two substances in the gastric juice, as it was poured out. The cyanide of potash can be detected in the secretion of the stomach in twenty-five or thirty minutes after its ingestion, earlier than in any of the other secretions. During the period of abstinence the constant presence of mucus renders the reaction of the stomach alkaline, and it is only when the presence of some substance in the cavity excites the flow of the gastric juice itself, that it becomes acid. M. Bernard finds, as did Beaumont, that any febrile movement has the effect of arresting this secretion, and thus interfering very materially with digestion—a practical fact which ought not to be overlooked.

The gastric juice as taken from the fistulous opening was invariably acid in its reaction, was clear as water, without taste, as without any odour except that of the particular animal. MM. Leuret and Lassaigne* have confirmed M. Bernard's observation, that the internal membrane of the stomach, when free from mucus, presents always an acid reaction.

In regard to the composition of this gastric fluid, it seems agreed, that at least ninety-eight parts in a hundred are pure water, the remaining two being made up of a free acid, the chlorides of lime and ammonia, phosphate of lime, an aromatic principle, and a particular animal matter, generally known as *pepsin*, and called by some *chymosine*, and by others again *gasterase*. M. Blondlot in his book already quoted, denies that there is a free acid in the gastric juice, the acidity of which he believes to be owing to the presence of the acid salt, the bi-phosphate of lime. His principal reason for this opinion was that he found, on the addition of carbonate of lime, that there was no effervescence produced. This, however, MM. Bernard and Barreswil† have proved to be caused by the extreme dilution of the acid, for, on concentrating the juice by evaporation, and then adding the lime, the carbonic acid was evolved. We have, moreover, the authority of M. Dumas in his Chimie Physiologique, that there is no biphosphate of lime in the stomach. The question has been much discussed as to what this free acid is, and what is its action in the process of digestion. Dr. Prout tells us that, on testing some gastric juice which he had distilled, with nitrate of silver, he found hydrochloric acid, and MM. Tiedeman and Gmelin say the same. Dr. Dunglison found this acid in the gastric juice of Dr. Beaumont's subject. Dr. Prout thinks that it is formed from the chloride of sodium of the blood being decomposed by a galvanic action, the liver and the gastric mucous membrane representing the two poles—the acid remaining in the secretion, the soda passes off by the liver. Berzelius said he could conceive of no other way than this by which it could be found in the stomach. However formed, there can be no doubting the

* Recherches Physiol. et Chimique.

† Analyze du Sucre Gastrique, 1844.

opinion, now the generally received one, of the distinguished persons named as having detected this acid in the juice when distilled—but this does not establish its presence as a free acid in the stomach itself, for it may be the result of a decomposition of some salt. MM. Bernard and Barreswil state that, on adding a small proportion of hydrochloric acid to the gastric juice, it does not pass in distillation until near the end of the process. They think that, in the rare cases where this acid has been found in the distilled secretion, it was owing, during the last moments of the operation, to a decomposition of the chlorides from the altered chemical affinity caused by the concentration, or from the action of some other principle there found, probably the lactic acid. Their ground for so thinking is that, on distilling water containing table salt, after having rendered the solution acid by the addition of lactic acid, the last drops show on using the nitrate of silver the precipitate of the chloride of silver, owing to the formation of muriatic acid. Another proof they urge that this acid cannot be present is that if a small proportion of oxalic acid be added, there is produced at once a white precipitate of the oxalate of lime, which formation the presence of a very minute quantity of hydrochloric acid would prevent. Some have thought that the acid principle might be *acetic acid*, but neither Blondlot nor MM. Bernard and Barreswil have been able to obtain it by distillation; which, owing to its being very volatile, is sufficient proof that it is not present. M. Chevreul, some years since, in analyzing some gastric juice for Magendie, concluded that the free acid was the *lactic acid;* this opinion is sustained by Bernard and Barreswil, in their recent memoir presented to the Academy of Sciences. They recognize it by all the characters insisted upon by distinguished chemists. It forms salts of lime, barium, copper, and zinc, soluble in water; it gives a salt of lime soluble in alcohol, and precipitable by ether from the alcoholic solution; and can produce a double salt of copper and lime, the colour of which is more intense than that of a simple salt.* It is, moreover, reasonable to suppose that nature would employ in the stomach, as she does elsewhere, mild agents, particularly as M. Bernard has proved that any acid principle would act just as efficiently as that found in the gastric juice; this he showed in artificial digestion with this secretion. On rendering it alkaline the process was completely arrested, but it commenced again on adding any acid, no matter what, provided the quantity was sufficient to change the reaction. Moreover, in injecting into the circulation food digested artificially with gastric juice, thus rendered acid again, if the acid employed was a strong mineral one, such as the hydrochloric, it was difficult to add so small a proportion that the injection would not prove fatal. Bernard found, in trying his experiments in injecting different substances into the veins, that the lactate of iron, which is the most absorbable of all ferruginous preparations, was the only one which

* See "Analyse du Sucre Gastrique." (Comptes Rendus de l'Acad. des Sciences, 1844.)

was not poisonous. From these facts M. Bernard concludes that *lactic acid* is the free acid found in the gastric juice, and that there is neither acetic nor hydrochloric present.

In regard to the action of the gastric juice, and to the whole process of digestion, we cannot but be struck with how valueless all the theories ever invented are in comparison with such facts as were afforded by the investigations of so accurate an observer as Dr. Beaumont, upon the opening into the stomach of St. Martin. The science now possesses two other cases of the kind in human subjects, a woman noticed by Circaud, and another spoken of by Helm,* and now of numerous ones produced artificially in animals. From these many points in digestion, before obscure, have been determined.

Dr. Beaumont was inclined to believe that the gastric juice was the only solvent, and that it acted upon and digested all kinds of food. This was a natural conclusion from seeing them all in solution, and as ready to pass out of the stomach, in, as he supposed, one homogeneous mass, called *chyme*. His observations unfortunately were confined to the operations in the stomach alone, and he mistook the dissolution of all alimentary substances, from the imbibition of the acidulated water, to be their digestion. M. Blondlot states, as the result of his experiments, that the action of the fluids of the stomach was limited to that class so rich in nutriment, the prominent constituent of which is nitrogen. He found that in artificial digestion such was certainly the case, and he concluded that the process was the same within the body. M. Bernard found, as we before mentioned, that amylaceous substances passed through the stomach, only having been but slightly altered by the saliva; in the same way, on opening the duodenum of a dog, he repeatedly found fatty matters coming from the pylorus perfectly unchanged. He then repeated Blondlot's experiments in regard to the action in the stomach upon meat, the principal constituents of which are fibrin, albumen, and creatin, all nitrogenized substances—he found that the gastric fluid had, when kept sufficiently long in contact with it, rendered it fit for absorption, for when he injected the fluid containing it into the circulation, that it was not discoverable in the urinary secretion, thus showing that it was assimilable; this was the case also with casein. He was astonished, however, to find, on examining the fluid mass passing through the pylorus, that he could still discover, though minutely divided, the muscular fibres in parts, showing that the whole amount had not been completely digested. So that, as the saliva had the properties of converting starch into dextrine, &c., when it remained long enough with it, yet that ordinarily in the process of digestion, the time of contact was too short for the complete action to take place. So it was in regard to the digestive powers of the gastric fluid on azotized food. M. B. agrees with Blondlot, that liquid albumen is not coagulated at first, before being digested in the stomach, but that it is merely rendered opalescent.

* Cours de Physiologie, par P. Bérard, 1850.

Casein, however, is coagulated before being altered by digestion; the mucous membrane itself, as is seen in that of the stomach of the calf, known as rennet, has the effect of coagulating milk. All other classes of aliment are merely saturated and softened by the saliva and the watery portion of the gastric juice, and thus more easily divided by the peristaltic motion preparatory to their digestion further down in the intestinal tube.

The action of the gastric juice is found by Bernard not to be the same in all animals, but to be modified by the kind of food used habitually; thus, in herbivorous animals, as proved from that collected from an ox, it acts much less perfectly than does that taken from a dog.

It is thus seen that not only did Beaumont exaggerate the action of the gastric juice, in supposing it the universal solvent, but Blondlot erred even in thinking that in the living subject all the nitrogenized articles were digested in the stomach. So that the term *chyme* has in fact no definite meaning—the bolus passing out of the stomach being composed partly of digested and partly of undigested food—there being only a portion of the amylaceous and of the azotized, which are ready for assimilation, and in ordinary digestion the whole mass is submitted to further action from the intestinal fluids. Instead of digestion being completed in the stomach, it is merely commenced.

The question has often presented itself as to what was the principle in the gastric fluid which acted upon food? Those who believed that there was present more or less of free hydrochloric acid, taught that it was it, or at least that because acids destroyed meat, therefore, it by so doing digested them. Of this hypothesis Blondlot disposed by trying in separate vials the comparative action of mere acidulated water and the gastric juice; in both there was a change, but in the former there was merely a disaggregation of the muscular fibres. Bernard's experiment was still more conclusive. After submitting pieces of meat to the action of the two liquids, as did Blondlot, he injected them into the circulation, and found that that which had been subjected to the action of the simple water and acid, had passed off entire in the urine, whereas the other, having been assimilated, could not be detected in the renal secretion. The action, moreover, stated M. B., of the two fluids upon bony matter was very different, the acid water attacked and destroyed the mineral portion, whereas the gastric juice digested the gelatin and left the phosphates and carbonates unaltered. This may be easily seen by examining the stools of dogs fed upon bones. The active principle of the gastric fluid is now generally admitted to be the organic principle *pepsin*, which can be precipitated by absolute alcohol. It differs from all other organic substances by its coagulating casein without the aid of an acid. It does not, however, digest any species of food when not mixed in an acid solution, as may be easily seen in artificial digestion by rendering the liquid alkaline, but the process may be again commenced by adding any other acid; whereas, if you raise the temperature above 98° Fahr., you destroy for ever the digestive properties of the pepsin, and the fluid ceases to act. The action

of the acidulated water is necessary before the pepsin can effect anything; the latter acting in force in proportion as the food is softened and divided by the other.

The influence of the nervous system over the secretion of the gastric juice, and consequently upon digestion, has been much discussed, and contradictory experiments have been published, even by such men as Sir Benjamin Brodie, Dr. John Reid, Longet, and Magendie. Some asserting that the integrity of the pneumogastric was necessary, and some the contrary; others again that it was through the grand sympathetic that any nervous influence was conveyed. To show what M. Bernard has done to elucidate this point, we propose giving two or three of his experiments. The two substances, *emulsine*, the albuminous matter found in almonds, and so named by Liebig, and the *amygdaline*, the principle of bitter almonds, when administered separately, are perfectly innocuous, but when united, there is at once a formation of hydrocyanic acid, and of course if they come in contact in the stomach of an animal, they must prove poisonous. Aware of this, he selected two dogs, on one of whom only he performed the resection of the pneumogastric nerve; to both he administered at the same time a certain quantity of emulsine, and half an hour afterwards he gave to each of them the same amount of amygdaline. The dog whose nerves were intact escaped without injury, whereas the other died in a few minutes. From this it was concluded that the first animal had digested the emulsine before the amygdaline reached it, but, in the second dog, in consequence of the cutting off of the nervous communication the gastric juice was not secreted, and the first ingested substance was not acted upon, but remained in the organ, and the other coming in contact with it, there was a formation of prussic acid; which, being absorbed, proved fatal. Another experiment proved indirectly the same fact. He gave to a rabbit which had been fasting thirty-six hours, and whose urine had become clear and acid, a meal of carrots, and in two hours and a half the urinary secretion became opake and alkaline, and so remained for eighteen or twenty hours. He found by cutting the pneumogastric during that time, that the urine changed again to be acid in its reaction, and clear. On another animal he perceived that a resection of the nerve, immediately after the meal of carrots, prevented entirely the urine from becoming filled with carbonates, which cause the alkalinity and opacity, and which are derived from the digested vegetable. So the urine remained clear exactly as if there had been no carrots in the stomach. This effect is attributed to the non-secretion of the gastric fluid by which the substances could be digested; or, as in this case, prepared for digestion. There being no liquid in the stomach, of course they were not softened or divided, but remained there unaltered. We are at a loss to conceive of any other than M. B.'s explanation of these results, namely, that the gastric juice is under the influence of the eighth pair. But he has given us still more conclusive evidence of this in his researches on the stomach by means of fistulous openings. He cut the pneumogastric of an animal into

whose stomach he had previously introduced a canula at the moment when there was a free flow of gastric juice excited by the presence of an alimentary bolus; at once he saw the mucous membrane, which had been tense and turgid the moment before, become withered and pale (the vascularity greatly diminished), and the gastric juice ceased to flow. On introducing his finger into the stomach itself, the walls were perceived to be perfectly flaccid, and there was no longer the gentle pressure which he had previously felt. Another proof that after the resection there was no further secretion, was that on putting sufficient salt into the stomach to destroy the power of the gastric juice secreted before the operation, the bolus became putrid in consequence of the arrest of digestion.

We have now traced the alimentary bolus to the pyloric orifice of the stomach about to pass into the duodenum. At this point, as we before stated, it has received the name of *chyme*, which, far from being a homogeneous mass, consists of the fatty matters unaltered, of the amylaceous but partially converted into sugar by the saliva, and finally of the azotized material digested ordinarily but in part by the gastric juice.* The whole has invariably an acid reaction.

It is difficult to ascertain from the text-books on physiology what are the prevailing views as to what takes place in the process of digestion below the stomach. The impression seems to be that the intestinal fluids separate the nutritious portion of the chyme, which is absorbed by the lacteals and known as *chyle*, from the excrementitious which passes through the intestine. Carpenter speaks of chyle as imperfectly elaborated blood. It is particularly to this heretofore obscure stage of digestion that we think M. Bernard has made some brilliant contributions, as we shall proceed to show.

The Bile.—The most important point in regard to this fluid is to decide in the first place the much discussed question whether or not it is purely excrementitious. That it is so, was supposed from the character of its proximate elements, the amount of hydro-carbon; to remove which, as an auxiliary to the lungs, whether from the aliment as such, or as effete matter taken from the blood in the course of the circulation, was thought to be its use. Moreover, it flows not as the ordinary secretions at the time of digestion, when needed, but, like the urine, more or less constantly. An objection, however, seems to present itself to its being exclusively excrementitious, from the point in the intestinal canal where it is emptied. Why, if merely to throw off what is injurious to the system, should it be poured out at the very commencement of the small intestines, where absorption is most active? Such is not the mode in which nature provides for the other excrements. It would, from this fact merely, be natural to suppose that it did act as a chylo-poietic fluid. But we

* Dr. Beaumont's tables, so frequently quoted and so much relied upon, of the mean time of digestion of the different articles of diet, are thus rendered of but little value—he having founded them upon the supposition that, when any substance disappears from the stomach, it has undergone complete digestion.

are not without experiments. M. Blondlot, whose authority we have so frequently quoted, declares,* after several times tying the ductus choledochus of dogs, that the biliary secretion is not necessary for digestion; because, though nearly all the animals died, yet that in two or three instances they survived months, and in one case years. The deaths he thought were caused by the retention of the bile within the blood, as was shown by the jaundiced tint of all the tissues and secretions of the body; indeed, in more than one case the bursting of the biliary duct into the peritoneum caused death. The inferences of Blondlot might appear conclusive had we not the experiments of the Belgian professor, M. Schwann, which have been since repeated and verified by M. Bernard. They too succeeded in tying the ductus choledochus without killing the animals, but on making autopsies of them some months after, they found that a new duct to convey the bile to the intestine had been formed! In other cases they inserted canulæ into the duct so as to convey the bile outward, and thus prevent a new one from being made, and the invariable result was fatal. This was conclusive, as it showed that death was produced not only by the poison of the bile, but by the mere absence of its flow into the digestive tube. Moreover, if the biliary fluid is only effete matter, why is it that it is not detected as such in the excrement of the bowels? Liebig tells us that no choleic acid is ever found in the stools, but that it must be re-absorbed; in fact, the colouring matter is all that is there discoverable of the bile. It being decided that this secretion is necessary for the process of digestion, and not merely excrementitious, the important question arises as to how and upon what substances it acts. To solve this, Sir Benjamin Brodie tied the ductus choledochus of cats, and on opening the abdomen he found that the lacteals were not filled, as usual, with a whitish mixture of the consistence of cream, but with a transparent fluid, which he regarded as composed of lymph and of the most liquid portion of the chyme. Supposing that the white chyle was fatty matter, he drew the conclusion which he published, that the bile digested fat. Magendie, on hearing of these interesting experiments, hastened to repeat them on dogs, his favourite victims. A great number were sacrificed before he could succeed in getting two of them to live even a few days; and in them, contrary to what Brodie had stated, he found that a white chyle had been absorbed by the lacteals, and that as before fæcal matters had been formed, notwithstanding the interruption of the flow of bile.

It is painful to think of the loss of life to the dog and cat race this difference of opinion, between such distinguished men, has given rise. M. Blondlot alone killed no less than twenty-five dogs in these experiments. Several others entered the field, among them Dr. Mayo, and MM. Tiedemann and Gmelin. It is curious, and at the same time discouraging, to see the different conclusions at which they arrived—the partisans of each equally positive in

* Essai sur les Fonctions du Foie, Paris, 1846.

their opinion. As we shall presently show, M. Bernard has cleared up the difficulty by explaining what is properly speaking the cause of the white fluid in the lacteals, from what it is formed and how.

Beaumont added bile, taken from a cow recently killed, to some chyme coming from St. Martin's stomach, and found that the effect was to separate it into three distinct parts, a reddish-brown sediment at the bottom, a whey-coloured fluid in the centre, and a creamy pellicle swimming on the top. The centre he concluded was chyle, the creamy pellicle digested fatty matter, and the sediment the excrementitious portion. Others had the same results. Müller* made an emulsion by adding bile to oleaginous substances. Tiedemann said that the white flakes seen in the liquid was mucus. This we believe was the uncertain state of our knowledge in regard to the action of the bile, when Bernard commenced his experiments. He had observed that in most animals, as in man, the duct from the pancreas opened either side by side in the duodenum, or else together with the biliary duct; in the dog that there were two canals from the pancreas, one emptying with the ductus choledochus and the other lower down in the intestine; in the rabbit, however, by a singular provision of nature, the pancreatic duct entered the duodenum eleven or twelve inches further down than that from the pancreas, the intestinal canal being unusually long for so small an animal.

Having procured the biliary secretion from the rabbit, perfectly pure and fresh, and certain that it contained no other secretion, he tried its effect upon the several varieties of food. He found that when thus used alone, it had no possible action except upon rancid oil, with which it formed a kind of soap, but upon pure oil there was nothing more than a mere mechanical mixture, the two substances separating when left standing, the oil floating on the surface. Believing that it could not be without its use, he determined to try it in combination with the other intestinal fluids. It was a thought worthy of him, and productive of important results.

Mixed with gastric juice, either artificially or in the upper part of the duodenum, as could be observed in the rabbit, it is shown to have several properties. It renders the mass alkaline; it precipitates and renders insoluble the azotised portion, leaving untouched the saccharine and the fatty. This precipitate Magendie designates "le chyle brut." It further renders the chyme indestructible and imputrefactive, by regulating the chemical reactions and the evolution of the gases arising from decomposition. This M. Bernard substantiated by showing two pieces of meat in vials, where they had been put three months previous, the one with gastric juice alone, and the other with gastric juice and bile mixed—from the former, there was a strong ammoniacal odour resulting from decomposition, whereas the latter was pure and free from any smell whatever.

By precipitation, bile, moreover, has the effect of arresting every kind of fer-

* Manuel de Physiologie.

mentation of all organic substances. To prove this to his auditors, Bernard introduced into the stomach of a dog a cake of yeast, and in two hours, when it was perfectly saturated with gastric juice, he withdrew it, and applying heat to a portion of it, there was an evolution of carbonic acid, showing the commencement of the fermenting process; to the remainder, before employing heat, he added some bile, and though kept over a hot water bath much longer than the other, there was no evidence of its fermenting. Another experiment was performed to demonstrate this property of preventing fermentation, by the administration of the emulsine and amygdaline. The emulsine, which is the ferment, was injected into the rectum, and the amygdaline into the stomach—in due time the latter descended, or part of it, and came in contact with the former in the rectum, and in a few minutes, from the formation of prussic acid, the animal died. In another subject the emulsine was placed in the stomach, and the amygdaline in the rectum, the reverse of what was done in the first instance. Here there was no fatal result, in consequence of the bile having destroyed the ferment before it reached the other substance in the rectum. Still another proof may be drawn from M. Schwann's experiments in introducing canulæ into the ductus choledochus. The animals licked the bile as it flowed externally, and it caused their death the sooner, by precipitating the pepsin in the stomach, and thus preventing all digestive action of the juice. In this way the bile prevents the formation of the gases in the intestinal canal from decomposition of the several articles of food. The medical application of this will at once strike your readers—when from any cause there is a deficient supply of bile to the intestine, or when more food is swallowed than the quantity of bile can act upon (for of course there is a limit to the amount of this secretion, as Beaumont found there was to the gastric juice), or if from any other pathological cause the character of the fluid is altered, or its action prevented, there is a putrid fermentation, from which there is an evolution of flatus and a consequent diarrhœa. Under these circumstances there is a predominance of alkalies, and we would suppose, that acids could be advantageously employed. By what principle the bile acts seems undetermined. Prof. Platner, of Heidelberg, supposes that the salt, the choleate of soda formed in the bile from the union of the peculiar fatty acid, choleic with the soda, acts upon the lactate of albumen, fibrin, or casein, as the case may be, and that there is a double decomposition resulting in the formation of the lactate of soda and the choleate of albumen, &c.

Before proceeding to the action of the bile in combination with the pancreatic juice, which constitute what is, properly speaking, the *intestinal fluid*, let us arrive at what to us is one of the most brilliant discoveries of this distinguished physiologist—*the use of the pancreas*, which is, that its secretion enjoys, to a very high degree, the prerogative some had attributed to the bile, that of emulsioning oleaginous bodies, and thus rendering them capable of absorption by the lacteals, and that in fact, it is the only fluid concerned in the digestion of fatty matter! In making some experiments, with a view of

comparing the digestion of herbivorous animals with carnivorous, he, by keeping all other food out of its reach, forced a rabbit to eat nothing but meat, after which he opened the abdomen, and observed that the absorbent vessels of the small intestines contained a limpid fluid for the distance of about twelve inches below the pylorus, and that from that point they were white, and contained the same fluid which is found in the lacteals of the human subject, and in the dog throughout the whole extent of the duodenum. Remembering that, in man, the ducts of the liver and of the pancreas enter together near the pylorus, and that in the dog one of the pancreatic canals empties high up, with the duct coming from the liver, it at once occurred to his quick mind that it must be the secretion of the pancreas which made the milky fluid, by acting upon the fatty matters, and, of course, it was only below the insertion of the duct which conveyed it to the intestine that the absorbents contained the emulsion which gave them their peculiar white appearance.

He proceeded forthwith with direct experiments, and extracting pure pancreatic juice, he mixed it at a mild temperature with oil, and afterwards with butter, mutton tallow, and indeed, with all varieties of fat, and with them all he made an emulsion resembling in colour and in consistence, and apparently in every particular, the chyle he had extracted from the mesenteric lacteals. To test whether or not there was any other liquid or secretion of the body which had the same effect, he tried the bile, the saliva, the gastric juice, the serum of the blood, and even the cephalo-rachidian fluid; with all, the result was a mere mechanical mixture, which, on standing a few minutes, was destroyed just as though it had been attempted to mix oil and water; whereas, the emulsion formed by the fat and the pancreatic juice remained perfectly unchanged. These experiments, made out of the body, were not conclusive enough to a mind so accustomed to close and vigorous observation, but needed confirmation, which he was not slow in procuring for himself and for science. After keeping a rabbit fasting for some time, he gave it a full dose of twenty grammes of fat, and allowing sufficient time for it to be pushed down the intestine, he killed the animal in three hours, and found the absorbents nearly empty to the point of insertion of the pancreatic duct, containing only a small quantity of a limpid fluid; whereas, below that they were distended with white chyle. In the intestinal canal above the duct of the pancreas, there was some melted fat which was unaltered in colour, but below it was seen more or less of the same white emulsion corresponding to that contained in the lacteals. Here it was evident the biliary secretion had had no effect, for it was poured into the canal near the stomach, and the substance was unaltered for inches below. His next essay was in tying the pancreatic duct of another animal of the same species before giving the oil, and on opening the abdomen, after the same lapse of time, he found the lacteals free from chyle, and the oily matter undigested in the intestinal tube, passing down to be thrown off in the excrement. On putting a ligature around both the pancreatic ducts of a dog, he had the same result. He could now assuredly be satisfied of the truth of his

discovery, that the digestion of fatty matters was the peculiar office of the pancreas. On repeating his experiments in the presence of M. Dumas, he remarked, that he knew of no alkali, not even the caustic potash, which could make with oil so perfect an emulsion, or in so short a time.

There can now be no difficulty in explaining the contradictory results of Brodie's and Magendie's experiments in regard to the action of the bile on fatty matter. The former had operated upon cats where, owing to the proximity of the ducts of the liver and the pancreas, it is difficult to tie the one without the other; and he, by putting a ligature around both, of course prevented the flow of the pancreatic juice as well as that of the bile, and thus interfered with the digestion of fat, and consequently of the appearance of the thick white fluid in the absorbents. Magendie selected the dog, and in tying the ductus choledochus he probably included also one of the pancreatic ducts; but he left free the other, which opens further down in the intestine, and which acted upon the particles of fat, and they were afterwards taken up by the lacteals. Müller's error can be accounted for in the same manner; in the bile he experimented with, there must have been a mixture of the pancreatic fluid. If further proof be desired, it may be found in the fact mentioned by M. Bernard, that the herbivorous animals, when confined to their ordinary food, have no white absorbents or lacteals. He has, moreover, found that in all mammiferous animals the pancreatic duct always empties with or below the biliary duct, never above.—For the purpose of showing those present how he obtained the pure secretion of the pancreas, and its action, he had a dog placed on the table before him, and, after securing him well by tying his feet and muzzling him, he cut into his right flank, and drawing out the pancreas, which was of a bright rose, the colour it always presents when secreting, he inserted a small silver tube into the duct, and secured it there by a ligature. At the end of the canula was an India-rubber bladder, to receive the secretion which flowed only a drop at a time. At the close of the hour, during which time the animal continued eating without being in the least disturbed, the sac was found to contain about two fluidrachms (ʒij). The Professor remarked that, if the canula was withdrawn and the wound closed, it would be healed up in two or three days without any unpleasant consequences. The fluid, as thus drawn, was colourless and viscid, and in some respects resembled the saliva extracted from the submaxillary gland, but differed from it essentially, being coagulable by alcohol and by heat. Its alkalinity was evident, only a drop sufficing to restore the blue to reddened litmus paper. Its alkaline reaction had been denied by Tiedemann, which, said M. Bernard, must have been owing to his collecting it as it flowed into the intestine, where the acid mucus changed it, for, when collected pure from the duct itself, he had invariably found it alkaline. On adding some of the pancreatic fluid collected in the little bladder to olive oil, and stirring the mixture for a few minutes, there was formed a creamy fluid corresponding very closely to some chyle, which he had, a few minutes previous, collected from the lacteals and the thoracic duct of a rabbit fed upon the same oil. M.

Bernard exhibited the duodenum of a rabbit, and the absorbents in the mesentery. Those from opposite the insertion of the ductus choledochus down to the point where the pancreas empties its secretion, contained a transparent fluid in small quantity; whereas, below that, the white ramifications, showing the presence of the fatty emulsion, were very evident. This last experiment, which is perfectly conclusive, can be easily verified by any one. Keep a rabbit fasting for thirty-six hours, and then administer a dose of fat and kill it in a few hours. To push the oil down in the intestine, and to facilitate matters, a meal of some vegetable may be given.

Although oily and fatty matter are neutral in their reaction, the emulsion is at first alkaline; but in artificial digestion it soon becomes acid, owing, M. Bernard thinks, to the transformation of the fat into glycerin and the fatty acids, margaric, stearic, or oleic, as the case may be. This is evidenced by the odour of butyric acid when butter is the fatty substance used, and the mixture is permitted to stand some little time. We see it stated by Dr. Chambers* that Prof. Frericks, of Berlin, though he admits the truth of the digestion of fat by the secretion of the pancreas, yet denies that there is such a transformation, for that the oil globules do again unite. To this we reply that we have ourselves seen the emulsion after it had remained for days without being disturbed, and, on a close examination, not the slightest change could be detected from what it was immediately after the mixture. Dr. Chambers says that any animal substance undergoing a chemical change, which pancreatic juice does with great rapidity out of the body, in contact with butter, will cause an interstitial fermentation of the butter itself, and thus give rise to the acid smelt. This may be the explanation; but both Drs. Frericks and Chambers have misunderstood M. Bernard, in supposing that he thought that there was a transformation of the fat into glycerin and the fatty acids in the intestine, from the action of the juice of the pancreas; on the contrary, he has proved such is not the case, by finding the emulsion collected in the lacteals to be still alkaline, and in it the presence of fat globules under the microscope, though very minutely divided. Moreover, we have the testimony of MM. Bouchardat and Sandras,† that they have found and recognized in the chyle, the oil of sweet almonds, mutton and pork fat. Certain it is that the globules found in ordinary fat cannot be assimilated without being altered, for, if injected into the circulation, they prove fatal by their arrest in the capillaries of the lungs, through which they are too large to pass, just as bubbles of air entering the veins cause death by the stoppage of the pulmonary capillaries. M. Bernard does think it probable that, in the ultimate changes which fat undergoes in the body, there is a transformation into glycerin and fatty acids. His ground for so thinking is the result of an experiment of M. Magendie,

* On Corpulence, or Excess of Fat in the Human Body, by T. K. Chambers. London, 1850.

† Recherches sur la Digestion, et l'Assimilation des Corps Gras, 1845.

who, having fed dogs exclusively for some time upon butter, found their skins saturated with an oily matter, far from resembling true fat, and giving off the odour of butyric acid. M. Bernard further professes not ever having been able to detect in the blood any of the acids resulting from the oxidation of fatty substances, fat being always neutral as found in the economy; that such conversion must take place only previous to their being given off in the form of carbonic acid and water, in contributing to the formation of animal heat.

We believe that the discovery of the use of the pancreas by Bernard has not been denied. He himself had, a year since, repeated his experiments nearly forty times upon different animals; and we see that recently M. Colin, the distinguished head of the Anatomical Department of the Veterinary School of Alfort, has presented to the French Academy the results of a series of experiments on the pancreatic juice in the principal domestic ruminants, which correspond precisely to those of M. Bernard. M. Colin states that he selected the animals differing as much as possible, in food and in mode of digestion, from the carnivorous.

Although the fact itself is not disputed, yet the explanation appears to be. M. Mialhe, so wedded to his view that alkalies are the great solvents in the animal system, was inclined to impute* to their presence in the secretion the cause of the formation of the emulsion. M. Bernard, however, shows the falseness of this hypothesis by demonstrating that the fluid acts even in an acid mixture; moreover, this cannot be true in the intestine, where the acidity of the mucus would be sufficient to change the reaction of the juice as it drops from the pancreatic duct. Bernard has succeeded in isolating an albuminous substance in the secretion of the pancreas, to which he attributes its action—it has been called *chylopoine*. It resembles albumen, with the important difference that, after being coagulated by alcohol, it is redissolvable in water, and the solution possesses the same properties as the fluid itself. On the application of heat, the pancreatic juice coagulates *en masse*, and is converted into a concrete matter of very great whiteness, like the white of an egg, there being no liquid left. M. Bernard finds that sulphuric, nitric, concentrated hydrochloric acids, the metallic salts, and alcohol, all precipitate the albumen of the secretion of the pancreas; but the milder acids, the lactic or the acetic, do not. Alkalies redissolve it when precipitated by the acids, or by heat.

The pancreas itself, when saturated with water, imparts its properties to the solution. Another peculiarity of the pancreatic juice, as shown by Bernard, is that, of all liquids of the body, it changes the soonest when exposed to the air, and loses its coagulating properties. This quality is also changed in that drawn from those animals where the operation for abstracting it had produced much disturbance of the nervous system. For that reason, owing to the slight sensibility of his peritoneum, the dog is the best animal to be experimented

* See Mémoire sur la Digestion et l'Assimilation des Matières Albuminoïdes, &c., 1847.

upon. It is important that the juice used should be what is taken immediately after the opening is made, or else after the inflammation of the wound has subsided.

We ought not to omit to state that science already possesses several pathological cases where, from disease of the pancreas (as was proved from the autopsies), fatty substances were not digested.

Nor is fat the only substance acted upon by the secretion of the pancreas. MM. Bouchardat and Sandras* had previously shown its active power of converting cane sugar and amylaceous substances into glucose; it is not necessary for this property that there should be any other ferment than that which acts upon the fat, for, as Bernard has shown, very many animal substances have the same effect.

The *intestinal fluid*, which is composed of a mixture of bile and the pancreatic juice, together with the secretion of Brunner's glands, is shown by M. Bernard to have some very important usages in the process of digestion. It, owing to the presence of the fluid from the pancreas, acts upon fat and upon the saccharine class of aliments. It, moreover, has the property of rendering soluble the azotized matters precipitated by the mixture of the gastric juice and the bile; as thus finally acted upon, they form a substance known as *albuminose*, which differs from ordinary albumen in not being coagulable by heat, but by the mineral salts. Magendie's experiment will be remembered, of introducing into the duodenum through a fistulous opening a piece of sausage, which, on withdrawing the string to which it was attached, he found had been completely digested. Following this up with similar experimental researches, M. Bernard states that any class of aliment thrown immediately into the duodenum will be digested by the intestinal fluid. So, he teaches that the mixture of the chylopoietic fluids found in the intestines is a *universal solvent*, capable of rendering any alimentary substance of any description assimilable! Out of the body, he finds in artificial digestion the same effect. Dr. Dunglison explains Magendie's result, by saying that it was owing to the action of the gastric juice which had passed down into the intestine. Be this as it may, certain it is that the digestion of azotized matter in the stomach is very incomplete, whereas, in the intestinal tube lower down, the process is very active, much more so than that of the stomach.

We have now followed the different varieties of food to where they are ready for absorption. Before this they must be converted, it will be seen, into one of the three substances, *albuminose*, *emulsion of fat*, or *glucose;* for, previous to reaching this stage of digestion, they are not capable of being used as nourishment to form part of the living structure.

In regard to the various views put forth by authors of the process of assimilation, there is, unfortunately, more of plausibility than of certainty. M. Bernard, by instituting some experiments to ascertain the mode of absorption

* Annuaire de Thérapeutique, 1846.

of the different digested substances, has arrived at some curious facts. He finds that neither the albuminose nor the saccharine compounds are found in the contents of the thoracic duct, but "*en masse*" as taken up by the mesenteric veins in the vena portæ; moreover, that these substances, when injected into the superficial veins, pass off by the urine in a very brief space of time; but, if injected into the portal vein, they cannot be recognized in the same secretion. From these premises, he concludes they undergo a physiological modification within the liver, and that it is necessary, for their perfect assimilation, that they should pass through that organ before coming to the lungs. The fatty emulsion, on the contrary, is absorbed only by the lacteals, and is perfectly assimilated when injected into the superficial venous circulation, showing that it does not require the action of the liver. Some have reported having found traces of fat in the vena portæ; but this is an error, as Bernard shows by tying it near the liver, immediately on opening the abdominal parietes, where we have, of course, its proper contents without any of that of the liver, caused by the reflux from the removal of the usual pressure—which contains, as we shall presently show, fatty substances.

The Formation of Fibrin.—M. Bernard thinks that much of the albuminose is transformed at once, as it passes through the liver, into fibrin. His ground for this opinion is that the blood which enters the liver contains in large quantity the digested azotized matter, and but little fibrin, even when the animal has been fed upon meat; whereas, the blood of the hepatic veins contains much fibrin, and but little of the albuminose, and further, that this difference is only observed during digestion.

Let us, in a few words, give a *résumé* of what has been stated in regard to digestion: 1st. The principal use of the saliva is mechanical, the nature of the several secretions composing it being different, and answering different purposes. That of the parotid and sublingual, being clear and limpid, is poured out at the moment of, and assists, mastication; that of the submaxillary, being thick and glutinous, is secreted at the time of deglutition, for which it is more particularly adapted: out of the body, if permitted to remain long enough in contact with the amylaceous class of food, it converts them into dextrine, grape sugar, and lactic and butyric acids; but ordinarily, in digestion, it effects but little transformation, owing to the time of contact not being sufficient. It has no effect upon any other food, except that of softening the bulk, from the imbibition of its watery portion. The active animal principle found in the saliva is not a peculiar substance which deserves the name of diastase, as many other organic substances have the same digestive properties. 2dly. Amylaceous substances are generally digested by the intestinal fluid, by being converted into glucose. 3dly. Nitrogenized food is susceptible of being rendered assimilable by the action of the gastric juice alone, when it is sufficiently prolonged, but generally it is only partially digested by it, and has afterwards to be submitted to the influence of the bile and pancreatic juice; the bile renders the mass indestructible, and preventing fermentation, imputrescible, thus

regulating the formation of gas in the intestinal tube. 4thly. The pepsin is the active principle of the gastric juice—lactic acid its only free acid—and the secretion is under the influence of the nervous system. 5thly. Fatty substances are digested only by the pancreatic juice, which converts them into an absorbable emulsion. 6thly. The intestinal fluid is of itself a perfect solvent for all classes of food. In this, we see the beautiful provision of nature, to secure the proper digestion of food by furnishing several liquids to effect the same purpose. Thus, although the saliva and the gastric juice are capable of acting efficiently, yet ordinarily the food passes too rapidly from the mouth to the small intestines for the necessary transformation to take place, and a compound liquid is found in the duodenum, ready to supply the deficient action of the others. The nitrogenized portion of the aliment, being the most important, as the most rich in nutriment, it is necessary should come in contact with all these fluids. Fatty matters are permitted to pass untouched, until the others have been acted upon; and it is proved that what is commonly known as chyle is not, as is generally believed, the nutritive portion of the chyme, but is formed exclusively of digested fat.

Our space will not permit us to enlarge upon the importance of these discoveries, as showing that nature has provided a distinct place for the digestion of each kind of food, or of their value in the treatment of the various forms of indigestion passing under the name of dyspepsia; not only can the seat of disease be detected, but the case may be judiciously managed, often solely by the regulation of the diet.

The Secretion of Fat.—The general impression in regard to the use of the fatty portions of the aliments has been that they, in part, pass at once to the lungs, where they furnish material for combustion, and thus contribute to the formation of animal heat; and that the other portion is deposited in the form of adipose tissue in the different structures of the body, not only for the mechanical purpose of pads to facilitate the motion of the joints and of the muscles, but also as a protection against cold, and as a reserved supply of fuel to the lungs. It has been for years a difficult problem for physiologists to solve, from what source was derived the immense amount of fat sometimes found in the tissues. That the digestive powers could only touch a certain quantity of what was put into the stomach was made evident by Magendie's experiments; for fat, over a certain amount, was not acted upon in the intestines, and even all which was taken up by the lacteals could not be appropriated by the system. The ducks fed exclusively upon lard became perfectly saturated with it, and it exuded from the end of their feathers; and M. Boussingault found but little difference in the amount of oily matter in the blood of pigeons and ducks, kept without food for some time, and in that of others stuffed with fat. That fat is employed as one way of passing off the hydro-carbon from the system, as effete matter, is evident, from the means ordinarily employed to fatten animals. One mode is to prevent the lungs from excreting so much by keeping the animals within a coop, the absence of

exercise lessening the demand of the respiratory apparatus for carbon; indeed, we are all familiar with the fact that bodily inactivity with a full diet produces obesity, from the simple fact that less of the tissues are consumed. Light, too, by the usual chemical changes, diminishes the quantity of fat; therefore, it is excluded by the Italians from the rooms where they fatten their birds. The exclusion of light has the further effect of removing from the view those objects which, by arousing the attention and the anxieties, interfere with the activity of digestion. We thus know of means of retaining within the system fat which is formed; but the question arises, how is it produced in such quantities, when not contained in the alimentary material? The fat contained in the herbs given to a cow cannot account for the amount of butter found in her milk; nor can the hay, on which cattle are fed to prepare them for market, supply all their fat. M. Persoz found, in fattening geese, that the oleaginous matter formed in their bodies was more than double the amount which could be extracted from the maize consumed. In the interesting volume on "Corpulence," recently published by Dr. Chambers, of London, it is maintained that the additional supply of fat, over and above what is taken ready made into the stomach, is obtained by the conversion of other substances into it. He adopts Liebig's theory, that fat can be formed from a modification of the principles of terniary composition, which enter in so large a proportion into the food of herbivorous animals; thus, sugar, gum, starch, &c., are transformed into fat by parting with a portion of their oxygen. Dr. Chambers supposes that these substances undergo fermentation in the intestine, by the action of some of the secretions, and are thus converted into fat before they are absorbed. But it appears that it is not only when fed upon such substances that animals fatten, for M. Boussingault found that geese fed upon nitrogenized matter, such as albumen and pure casein, had more fat upon them than could have been taken into their stomachs. This leads Dr. Chambers to suppose, as did Dr. Combe,* that not only those proximate principles which contain oxygen and hydrogen in the proportions to form water can be converted into fat, but that complex nitrogenized compounds are capable of the same transformation into a non-nitrogenized matter. Such hypotheses, perfectly destitute as they are of proof, cannot be relied upon; but the fact was, the phenomena had to be explained. Now, if fat could be thus formed from the first class by its yielding some of its oxygen, and from the second by its being freed from all its nitrogen, where does the metamorphosis take place? To M. Bernard's mind, even Liebig's theory was far from being satisfactory; he desired some evidence derived from observing the operations of the functions of the living subject; he did not denounce it as absurd, but as unestablished by facts. Dr. Chambers supposes the change takes place in the intestine. Bernard, by the examination of herbivorous animals, which had been fed upon substances which contained no oleaginous principle, found that they had

* See Physiology of Digestion, &c., by Andrew Combe, M. D., Edinburgh, 1849.

no white lacteals; the absorbents from the intestinal tube contained only a clear transparent fluid, with no trace of fat. On extending his researches, he perceived that the absorbent vessels, commonly called lacteals, were different in the herbivorous from what they were in the carnivorous, and that the only way to have either the white milky appearance, or to find the fatty emulsion in the absorbents, was by administering oleaginous matter by the stomach. Thus was refuted Dr. Chambers' view before it was advanced. Where else could this important change take place, if not in the process of digestion?

M. Bernard had already proved, as shown in our first communication, by his discovery of the fabrication of grape or diabetic sugar by the liver, that the principle, heretofore acknowledged in physiology, that the animal system must derive from alimentary substances each and every constituent, was false. Not being able to account in any satisfactory way for the accumulation of fat in the tissues, he determined to see if it too could possibly be fabricated by any organ. His attention had been drawn to the liver from two or three facts recognized in pathology; in the first place, there was a disease known as fatty degeneration of that organ, found in persons suffering with phthisis, and in those habituated to the excessive use of alcoholic liquors; in both of which it was plain the liver had extra duty to perform. And again, why was it that, on keeping geese from consuming their fatty tissues, the amount accumulated should be so much greater in the liver than in the other organs, thus preparing the delicacy of the "foie gras?" There was still another fact which induced him to investigate particularly the action of the liver. Previous experimenters had found fatty matter in the portal vein, as he himself had in making his researches on the absorption of the different alimentary materials; but subsequently, on tying the portal vein near the liver, immediately on cutting through the abdominal parietes, he found there no trace of fat, though the experiment was performed after the dog had taken a meal exclusively of oleaginous material, from which it was evident that the fat he had there found in his previous experiments could not have been derived from the absorption of what had been digested in the duodenum. Collecting, therefore, the blood which entered the liver, he found no fat except when there had been a reflux of the fluid of the organ itself; but, on testing that which flowed from it in the hepatic veins, he there found it in abundance. After satisfying himself by repeated experiments that this was the case, he concluded that what was there found must have come from the liver, and have been formed there, as was the sugar. Astonishing as this may appear, that any one organ in the body should have the power of producing two elements so necessary for nutrition, yet the presence of fat in the hepatic vein, and nowhere else in the venous system, except in the subclavian below the insertion of the thoracic duct, cannot be accounted for in any other way; and, as we shall presently see, there are other facts confirmatory. Whether or not it is in this organ that the transformation supposed by Liebig takes place, M. Bernard

does not decide; but clear it is, he maintains, that there are two sources of fat in the system, even as there are of sugar—one from alimentary matters, and the other from the liver.

By a simple experiment, M. Bernard proves that the moment of digestion, when the liver is congested and in the active performance of its various duties, is the time selected by nature for this its newly-discovered office. After giving a dog a full meal of vegetable food, from which no fat could be extracted, he cut into the abdominal parietes, and, after putting a ligature around the portal vein, to prevent a regurgitation, he examined the blood of this vein, and found that there was no trace of fat, whereas that from the hepatic did contain some, and a decoction of a piece of the liver itself was cloudy, fat floating on the surface, which could be separated by ether. A piece of a liver of another dog, which had been expressly kept fasting for some time, was boiled, and the liquid was free from fat globules. In the liver of the rabbit and of other herbivorous animals, there is constantly more or less of fat, owing to the slowness of the process of digestion in them.

Hepatic fat differs somewhat from the other varieties; it is melted at a lower temperature; it is united to an organic matter from which it is with difficulty separated; it differs from the fat emulsioned by the pancreatic juice. It resembles most the fatty principle of butter. Sometimes it is found in great abundance, particularly in females during the period of lactation. It is then also discoverable in the blood, which may be seen by the whitish colour of the serum; or it can be extracted by ether. This fat corresponds to that formed in the liver; and M. Bernard asks the question whether this may not be the origin of the fat of milk which is secreted from the blood by the mammary gland. On pursuing his researches, Bernard finds that the blood of the arteries, coming from the lungs through the heart, contains nearly as much fatty matter as that of the pulmonary arteries, and that such is the case throughout the arterial circulation; while, on the contrary, in ordinary venous blood there can scarcely be discovered a trace of it. From this it is concluded that, as it disappears in the general capillary system, it is deposited as lard, suet, &c., in the cellular tissue. It doubtless serves, as does the hepatic sugar, the purposes of nutrition; but the latter is consumed in the lungs, whereas this is accumulated in deposits, as seen in hibernating animals. Further confirmation of the production of fat by the liver may be drawn from M. Bernard's experiments upon the influence of the nervous system over the quantity detected in the organ itself and in the blood leaving it. Any resection of the pneumogastric, or a violent shock to any part or to the whole of the nervous centres at once, influences its secretion. There appears to be a singular antagonism between this production and that of sugar, when the medulla oblongata is punctured; the fat diminishes in quantity as the sugar increases. In one experiment the arrest of the production of fat in the liver continued for three hours after the puncture, though the animal was in full digestion. But Bernard had, very *à propos*, an opportunity of examining the liver of a

diabetic patient who had died suddenly, shortly after a full meal. He found no less than seven grammes of sugar in it; but neither by ether nor alcohol could he discover traces of fat—thus verifying in the human subject the antagonism he had found to exist between the two secretions in animals rendered diabetic. M. Persoz, in his experiments previously alluded to, in fattening geese, found a large quantity of fat, not only in arterial blood, but in all the venous trunks, and in many parts of the body where, in a state of health, it cannot be discovered; the quantity of fat in the "foie gras," which far exceeded that in any other organ, rendered it milky white: this pathological condition being caused by the production in such quantities that it could not be consumed by the formation of carbonic acid and water.

There are other pathological facts which confirm this physiological discovery. Several authors, particularly Dr. Johnson, have mentioned a disease characterized by the presence of fatty matter in the urine, which, from its whitish colour, has been named *chylous urine.* M. Rayer mentions* several instances of this symptom occurring in patients where blood drawn from the basilic presented the same chylous appearance; while, ordinarily, as we before stated, blood drawn from the veins, except between the liver and the heart and below the insertion of the thoracic duct, contains no fat. Bernard exhibited to his class a specimen of urine voided that morning, which presented a cloudy chylous aspect, and from which, on treating it with ether, fat was extracted, resembling butter, and not distinguishable from the fatty matter found in the liver. M. Bizio, a chemist of considerable distinction, has reported some cases of chylous urine, in which the fatty principle resembled also that found in milk. Whence, asks M. Bernard, is this matter, found in the urinary secretion, derived? Does it not come from the liver, which, owing to some derangement of its functions, secretes more than can be consumed, and thus the surplus passes off in the urinary secretion, the receptacle of all useless material? This disease Bernard thinks may be appropriately named *a fatty diabetes.*

M. Bernard drew attention to a memoir to the Institute, by M. Guillot, in which he states that in phthisis, pneumonia, and indeed in all diseases where there exists an interruption of the normal pulmonary circulation, there is found in the lungs a quantity of fat, not discoverable in other diseases. This he thought might be explained by the arrest, within the pulmonary tissue, of the fat coming from the liver and through the subclavian.

Let us, in a few words, sum up M. Bernard's conclusions in regard to the formation by the liver, during the time of digestion, of these three substances, sugar, fibrin, and fat, which correspond to three nutritive alimentary materials. It has long been admitted that the liver, by the secretion of bile, assists the lungs in the elimination of carbon from the system. Comparative anatomy demonstrates this by showing the antagonistic activity of its functions at the different ages and in the several degrees in the animal scale. In

* Maladies des Reins.

a somewhat different way than the lungs, the liver is a *depurative organ*. But Bernard has shown us that the liver, by these secretions, has also other functions. These new products contribute to establish the equilibrium in the blood, for the liver, no matter what the aliment is, transforms it into material fit for nutrition, and thus the composition of the vital fluid remains unchanged; the sugar, fat, and fibrin thus furnished repairing to the blood the loss of these substances continually given off. The liver has thus the office of preserving the blood in a state of health, and in a chemical point of view is the organ of *sanguification*. That it is also the organ for regulating the equilibrium of the circulation is evident from M. B.'s results in experimenting upon different animals in regard to the quantity of each of these productions, which he found was furnished severally in the proportion needed. That is to say, in carnivorous animals there is less fat secreted, because there is more taken already formed as aliment; in the herbivorous class, where there is much saccharine matter consumed, there is less sugar fabricated; and the less fibrin the stomach digests the more the liver contains. Consequently, in man, where the diet is so variable, his blood will receive that which it has most want of, and *vice versâ*. Thus the liver has these three important functions, *depuration*, *sanguification*, and *equilibrium*. M. Bernard alluded to the fact, singular enough, that three of the most troublesome diseases man is heir to consist of an excess of three of the products of digestion, of albumen in albuminuria, of fat in chylous urine, and of sugar in diabetes.

We ought not to omit to notice, in conclusion, that M. Bernard, on inserting a thermometer into the different veins, found that the temperature of the hepatic was two degrees higher than that of the portal, owing, he suggested, to the active and abundant circulation of the liver; and, strange to say, that the blood of the pulmonary artery was not of greater temperature than that of the pulmonary and other veins. What light this may throw upon the formation of animal heat future experiments may develop.

That some of your readers will object to the conclusiveness of M. Bernard's doctrines, we doubt not; but we would remind them that it is scarcely fair to sit with folded arms, and reason about the probability of this or that physiological fact, without fortifying their opinions by experimental researches. In giving in detail the experiments of this distinguished physiologist, we have a double object in view, not only because we think they would render the results clearer and more satisfactory, but also that others may verify or disprove them. It is in this way that Bernard has refuted the doctrines of those who preceded him; and he wishes to be so treated himself. He asks but for this, and it is his right. Theories and theoretical reasonings have been the bane of our science, and what we want in future is something more satisfactory and more enduring—facts, carefully noted and the statistical results given, in all branches of medicine. Bernard has certainly put forward many entirely new views, but we must leave the reader to judge whether or not he has substantiated them by experimental proof.

Baltimore, *April*, 1851.

ART. V.—*Extracts from the Records of the Boston Society for Medical Improvement.* By WM. W. MORLAND, M. D., Secretary.

May 12. *Hydrocephalus.*—Dr. COALE reported the case of A. H., born January 14th, 1849. Parents healthy; first child. Dr. C. was called to see her when she was two weeks old; found her labouring under cerebral symptoms, which soon resolved themselves into undeniable signs of water on the brain. She was treated with small doses of calomel, and afterwards with hydriodate of potassa, with apparent benefit at first. The head, however, steadily increased in size. The general health was good except when disturbed by teething—at which time she had occasional spasms, never amounting, however, to a general convulsion.

	Measurement of head.	Inches.		Inches.
Sept. 12th, 1849.	Over crown from meatus to meatus	12¼	Round	18½
Nov. 1st, "	" " " " "	13½	"	19½
" 28th, "	" " " " "	14	"	20
May 10th, 1851.	" " " " "	17¾	"	23½

The family having moved out of town in Aug. 1850, Dr. C. did not see the child after that except at rare periods. The last time was May 10th, 1851. Her height is now thirty-one inches; she lies on her back; is blind, but hears, though imperfectly. The pressure above has forced down the vault of the orbit so that the eyeball seems lower, and more covered by the lower than the upper lid; much of the white above the cornea being exposed, whilst the cornea is half covered by the lower lid. The mouth contains the usual number of teeth. Motion of limbs perfect, but feeble, except of right arm, which is paralyzed almost entirely. Fond of throwing the left hand about, and with it occasionally feels the right arm, and resists any attempts to meddle with it. Extremities cold, making it necessary to keep a good fire in the room day and night through the winter. Never cries or frets. Takes, three times a day, ten ounces of milk, sucked from a bottle. Bowels open with regularity once a day.

The child died two months and a half after this, without any remarkable change.

May 26. *Otorrhœa of Twenty Years' Duration, terminating fatally from Hemorrhage.* Case furnished by Dr. F. H. GRAY. Dr. PARKMAN showed the specimen.—F. C., twenty-one years of age, of scrofulous habit, though having a good share of health, had been troubled with a purulent discharge of fetid character from the right ear, from infancy.

On the evening of April 10th, 1851, patient rode several miles on horseback, and on the following morning complained of general uneasiness, though sufficiently able to attend to his ordinary business. On the morning of the 15th,

severe pain commenced in right ear, which continued for three successive days, at the end of which period, copious and offensive purulent discharges found their way into the meatus auditorius and likewise into the mouth. Patient was greatly relieved by the discharges, and was able to walk and ride out, though he still suffered from headache, until the morning of the 21st, when some coagulated blood was ejected from the mouth. Copious hemorrhage took place from the ear and into the mouth at intervals, varying in quantity from ℥iv to Oj, during the next twenty hours, when he quietly laid himself back, and expired. During the whole illness, there was an almost daily occurrence of vomiting, with the pulse unusually slow, possibly to be referred to the influence of narcotics.

At the autopsy, there was found a slight bloody effusion in the lower surface of the cerebellum, proceeding from a small gangrenous opening in the posterior surface of the right lateral sinus, just before it terminates in the jugular vein; the sinus was also ulcerated on the side next the petrous portion of the temporal bone, and blood was extensively effused into the cavity of the ear and into the cellular tissue behind the pharynx. The petrous portion of the temporal bone, sawn through and exhibited, showed the cavity of the ear deeply affected with caries, and undoubtedly the inflammation had spread from this point, involving the sinus. The specimen is in the Society's Cabinet.

June 9. *Ovarian Tumour.* Dr. CHAS. E. WARE reported the case.—He first saw the patient (a single woman) June 29th, 1850. She was then fifty-nine years of age, and had perceived the enlargement of the abdomen for about a year. It had occasioned no inconvenience beyond a little embarrassment in walking. The swelling was occasioned by a tumour, hard and elastic, divided into three lobes. The central lobe appeared to originate from the fundus of the uterus, having the bladder directly between it and the pubis, and extending above the umbilicus. To the left of these tumours, between the crest of the ilium and the false ribs, there was another tumour, loose and flaccid like a half empty sac. Dr. Ware was called to see her on account of vomiting, and some disturbance of the bowels occasioned by the interference of the tumour. She was speedily relieved. She had similar attacks in July, September, and in November, at which latter time there was great fullness of the abdomen, and distinct ascites. She had, during this time, been taking the oxymuriate of mercury, and afterwards hydriodate of potash, without any distinct advantage.

In January, 1851, she had another attack of vomiting. At this time, the abdomen had very much diminished in size, and there was no appearance of fluid in the peritoneum. In the right groin, there was a group of enlarged inguinal glands; some of them as large as a hazelnut. No tenderness about them, nor signs of inflammation. At the time of her death, these had entirely disappeared. The tumours remained about the same, except that

they were more distinct on account of the general emaciation. Up to this time, in the interval of her attacks of vomiting, or of diarrhœa, which would continue from a week to a fortnight, she was able to keep about. After this attack, she rarely left the house, and was often confined to her bed. She slowly wasted in strength and flesh, was able to bear little food, and had more frequent attacks of vomiting.

March 31*st.* She was seized with griping pain in the bowels, and some looseness. She took to her bed, and did not again leave it. Three weeks afterwards a more severe attack occurred, under which she sank, June 4th.

Autopsy.—Very great emaciation. No fluid in the peritoneum. The inguinal glands entirely subsided. The tumour arose from the left ovary. It had only one very slight adhesion, and that to the omentum. Although forming one mass, it was lobulated into four or five parts. One of these was a cyst large enough to contain a teacup of fluid. The fluid was about the colour of strong coffee. Another small cyst, about the size of an English walnut, contained a soft paste of a dark bistre colour, which, under the microscope, presented only brown granules and granular corpuscles. The other lobes, which constituted the mass, and would weigh four or five pounds, were solid, and had much the appearance of carcinoma. There were several small cavities in them containing a limpid fluid. The whole mass had a somewhat œdematous appearance. Under the microscope it presented cells, caudate, irregular, and nucleated, but no granular corpuscles. There was a distinct stroma similar to that of carcinoma. At the lower part of the small intestines, the membrane was intensely red, rough, and at points ulcerated.

There was no disease in any of the other organs.

June 23*d.*—Dr. SHATTUCK, Jr., reported the following cases:—

Chronic Dysentery, Diarrhœa; less after taking Oil of Turpentine—Peritonitis not revealed by Symptoms—Extensive Ulceration of the Mucous Membrane of the Large Intestine.—B. P., fifty-five years of age, born in Genoa, had been in America two years—during the last of which, had lived in Boston. He entered the Massachusetts General Hospital April 19, 1851, reporting himself as having suffered for two months from chronic diarrhœa and abdominal pain. He knew of no cause for his disease; of dark complexion, emaciated; six or eight yellowish stools in twenty-four hours; tenesmus; abdomen flat, rigid, not tender on pressure; appetite small; no fever. He was put upon a diet of boiled milk and lime-water, thickened with flour, or pounded cracker; took chalk mixture and paregoric, tannic acid and powdered opium; up to the 30th April, there had been no improvement. He now took half an ounce of the mucilage of gum Arabic with half a drachm of the spirits of turpentine, and fifteen drops of the tincture of opium, three times a-day. He had an ounce of cherry brandy in the morning; chicken and maccaroni for his dinner. May 17th, he was more comfortable; less abdominal pain; more appe-

tite; two or three dejections every day. He took, for one day, three doses of the tincture of nux vomica, gtts. viii; had numerous dejections, with pain; the former medicine was resumed, and on the 21st he had but two dejections. He gradually lost strength, so as not to be able to walk about the ward; the 27th, he was in bed; no abdominal pain; no tenderness of abdomen on pressure. The 28th, the pulse was 106, small, feeble; prostration; no stool in last twenty hours; died that night.

At the autopsy, a half pint of pus was discovered in the abdominal cavity, the intestines being glued together by lymph, and their peritoneal coat and that of the cavity finely injected; mucous membrane of small intestines and stomach quite healthy. In large intestines, ulcerations commenced about two inches from the ileo-cœcal valve, small, round, numerous, several extending to peritoneal coat; six inches from the valve, three parallel strips of ulceration, three inches in length by three or four lines in breadth, extending to the submucous cellular tissue. Numerous small ulcerations in sigmoid flexure.

Chronic Dysentery—Sudden Death—Small Effusion of Blood between Dura Mater and Arachnoid—Peculiar Injection and Ulceration of Large Intestine.—Joachim, a Portuguese seaman, twenty-eight years of age, was taken with diarrhœa in a voyage from Batavia to Boston, and had been ill about ten weeks, Dec. 17th, when he arrived in this country. He ate indiscriminately; took no care of himself; continued to suffer from abdominal pain, diarrhœa, loss of flesh and strength, and entered the hospital April 18th. He was put on a diet of lime-water and milk, and pounded cracker; took astringents and opiates for several days. He continued to have seven or eight loose yellowish discharges in the twenty-four hours; occasionally, blood and mucus. He was then put on meat and rice, brandy and water, taking occasionally powdered opium or laudanum. Small epistaxis on the 21st; on the 29th, had a faint turn from which he recovered; ate his dinner with usual relish; died suddenly about five o'clock in the evening.

At the autopsy, a patch of effused blood three inches in diameter, rather more than a drachm in quantity, was found anteriorly on the right side between the dura mater and the arachnoid. The brain generally soft. The mucous membrane of stomach and small intestines pale, of sufficient consistence. The liver was healthy; its weight three pounds and a half. Injection in spots under serous and mucous membranes of large intestines, some of a bluish colour, some of a bright red colour, not corresponding to each other. Ulcerations small, circular; in some of these, patches of mucous membrane, extending to the cellular tissue. Mucous membrane of large intestines generally soft. Intestinal tube containing less of its secretions and fecal matter than usual, there having been free operations about the time of death.

Chronic Dysentery prevented by Oil of Turpentine—Strangury—Recovery.—Mary Beasly, a spare woman, muscular system sufficiently developed, healthy;

had had no long illness; had one attack of diarrhœa, which lasted about three weeks, in 1849. She came over to this country in August, 1850; suffered from sea-sickness during the voyage, which otherwise was pleasant; no fever or diarrhœa amongst fellow-passengers. She arrived in New York, and went immediately to live with her son; working moderately. She was taken with abdominal pain, and had six or eight loose stools in the twenty-four hours, with, occasionally, slime and blood, about a month after her arrival. She took pills, which controlled her discharges for a day or two at a time; occasionally she would have none. She entered the hospital June 10th, having had six or eight discharges a day for the last two weeks; pain; little or no appetite; tongue not remarkable; pulse 84; skin not remarkable; abdomen not full, tender on pressure. She took a pill with two grains of tannic acid and half a grain of opium twice a-day; five or six stools, with some blood and mucus. On the 11th, she took half an ounce of castor oil in a cup of flax-seed tea, which was followed that day by two doses, at regular intervals, of half an ounce each of the mucilage of gum Arabic, half a drachm of the spirits of turpentine, and six drops of the elixir of opium. She had three dejections on that day, none on the 12th; and, on the 14th, in the morning, she was attacked suddenly by severe abdominal pain. The house physician gave her a grain of opium and thirty drops of laudanum in a starch enema. Micturition bloody and painful. She took opiates and mucilages; was better on the 17th, well on the 22d, and left on the 30th, perfectly well in every respect, gaining flesh and strength.

These were the only cases of chronic dysentery in the medical wards of the Massachusetts General Hospital during the months of March, April, May, and June. There was one case of acute dysentery during the same period. Of one hundred and five cases of acute dysentery, which were received at the hospital during a period of twenty-four years, but three cases occurred in the spring months. Of nineteen cases of chronic dysentery, during the same period of years, there were also three in the spring. The peculiarities of these cases are, perhaps, sufficiently obvious without any farther comment.

June 23. *Poisoning from Eating of Strawberries—Eczema.* Case reported by Dr. ALLEY.—A gentleman ate freely of strawberries at noon. In the course of half an hour he was seized with nausea, which did not terminate in vomiting, but disappeared in about an hour. Towards evening he perceived a slight irritation upon his chin, accompanied with redness and itching. The next morning the whole of the right side of the face was swollen, and during the day the eruption extended across the forehead and over the left side of the face, and the swelling increased so as nearly to close the eyes. The same day, the eruption appeared on the anterior portion of the chest, on the scrotum, and extended down the inner side of the thighs. It was characterized by crops of minute vesicles, thickly crowded together; and upon the chin, and over the upper lip, appeared an exudation of yellow serum. The

constitutional symptoms were slight, the patient complaining somewhat of pain across the forehead; restlessness at night. Pulse accelerated; complained of no pain in abdomen. Patient reports that, six years ago, a similar attack followed the eating of strawberries, but did not appear to be so directly caused by them. Has eaten them occasionally since, but not without some feelings of discomfort. The bowels were freely opened by saline cathartics, and a light diet ordered. In the course of five days, the swelling subsided, redness disappeared, and the skin was rapidly assuming a healthy appearance.

June 23.—*Severe Urticaria from Hyoscyamus.* Case reported by Dr. CABOT.—Mr. B. was suffering severe pain in abdomen, and as it was deemed important that the medicine which he had taken (castor oil) should be allowed to operate, he was directed to take a teaspoonful of tinct. hyoscyami every hour until he had taken three doses—unless he was relieved sooner from his pain. Soon after the first dose, he felt his lips swell somewhat, and became drowsy. After the second dose, passed a large quantity of flatus. About ten minutes after the third dose, his nose swelled very much, which swelling extended all over his face and body, growing less severe below his waist; this was accompanied with a prickly sensation and itching. The skin of the face was very red, shining, and hard; the eyes were shut; there was no interval seen until below middle of body, where bunches and irregular patches appeared scattered over the surface, and some smaller ones appeared like enlarged papillæ of the skin. He could hardly utter a word, owing to a "stiffness of the tongue and lips," as he expressed it; what he did say was with a thick, blundering manner, like that of a drunken man: his mind appeared perfectly clear. The eruption began to subside in about an hour and a half from the time the last dose was taken, and had almost or quite disappeared the next morning.

June 27.—*Gangrene of Appendix Vermiformis.* Dr. J. M. WARREN related the case.—The patient was a gentleman forty years of age. He had always been subject to what are called bilious complaints. About four years since, he was confined for some weeks to the house with a severe attack of colic, attended with constipation; and at this time Dr. W. observed a small hard tumour, tender on pressure, in the right lumbar region. Two years ago last October, he had a second attack, in which the pain was excruciating, and required the constant inhalation of ether and use of the opiates to relieve him. At this time there was a diffuse swelling in the right iliac and lumbar regions, quite hard and very tender. Under the use of leeches, and by inducing a slight mercurial action on the system, he slowly recovered. At this time, Dr. W., fearing some organic complaint, not only from the swelling, but from his great susceptibility to cold and disturbed digestion, advised him to relinquish business, at least so far as to allow him to have his mind perfectly free from any care, and to give him an opportunity of paying particular attention to his

health. This he did, and has been quite free from any trouble until the final attack. This came on after exposure to cold and some irregularity in diet. The pain, for a day or two, amounted merely to a feeling of uneasiness, but gradually became excessive. A tumour could be distinguished, at this period, in the right iliac fossa, the size and length of the forefinger; was quite hard, and could be almost seized, through the integuments, and lifted up. The pain and tenderness were so great as to require the overpowering use of opiates, administered by enema. On the third day there was a slight evacuation from the bowels by means of an enema; but the patient shortly after fell into a state of collapse, and died on the third day after the violent seizure. For the last twenty-four hours there was the most distressing hiccough. On examination after death, extensive peritoneal inflammation was found to exist. There was very great induration of the omentum, with firm adhesions, arising apparently from the previous attack, two years before. Some purulent matter escaped from the cavity of the pelvis. The appendix vermiformis was found gangrenous and perforated at both ends, and in its central portion was contained a mass of indurated feces the size of a prune stone. On section of this substance, no nucleus could be discovered.

Amputation at the Shoulder-joint. Dr. J. M. WARREN.—The patient was thirty-two years of age, and was brought to the Massachusetts General Hospital on the 16th May, his arm having been drawn in between the cog-wheels of powerful machinery used for pressing hemp, two hours before—the limb passed in up to the shoulder. The bones of the hand were found to be crushed, the radius and ulna not broken; the lower two-thirds of the humerus communicated, and an opening over the brachial artery, two inches below the axilla, allowed the finger to be passed in up to the joint. The limb was removed by an anterior and posterior flap. Some difficulty was experienced in disarticulating the head of the humerus, from the fact that the bone being broken below, no purchase could be had by which the head could be lifted from its socket. A powerful pair of forceps had been provided for this purpose, but the displacement was effected without having recourse to them. The patient has done well. Dr. W. stated that the case was interesting, as being the first case of amputation at the shoulder-joint that had ever occurred at the Massachusetts General Hospital. The patient, whose case was reported to the Society in January, when the limb had been removed at the shoulder-joint for malignant disease, was now perfectly recovered, and had resumed his occupations.

July 14.—*Traumatic Injuries of the Iris.*—Dr. WILLIAMS reported two cases where considerable violence done to the iris had been followed by a very trifling amount of inflammation.

The first was a case where an operation for artificial pupil had been performed upon the right eye of a farmer aged sixty-one. Inflammation of the eye occurred twenty-seven years since, producing extensive adhesions of the

iris to the cornea, and a dense leucoma which covered the lower half of the cornea and the small portion of the pupil which remained unadherent. The other eye was lost last March. In performing the operation, a portion of iris was drawn out through a wound of the cornea, and a sufficient portion excised to form a pupil of rather more than the average size, towards the outer canthus. This was accomplished with some difficulty, the manœuvres being impeded by the extensive adhesions. Yet no inflammation followed. The patient might have gone out the next day, except that prudence forbade his doing so, and he actually did go out on the fifth day after the operation, seeing well enough to guide himself. His sight continued to improve, and he returned home to the country on the twelfth day.

The second case was that of a young man of twenty who was wounded by an explosion of a bottle of "mineral water." The fragment of glass divided the cornea horizontally in its whole extent, at the level of the lower edge of the pupil, and the wound extended so far into the sclerotica as to make its whole length half an inch. The iris protruded through the whole of this long wound, the pupil being deformed, and the entire substance of the iris put upon the stretch. This long hernia of the iris was greatly distended by aqueous humour accumulated behind it, and, it being impossible to effect its reduction, it was punctured with a cataract needle. The aqueous humour escaped in a jet, to the distance of three feet, and the tumour instantly collapsed. It became, however, re-distended on subsequent days, and the puncture was repeated four or five times. This proving ineffectual, a portion of iris was excised at the centre of the ridge, and from this time it remained collapsed until union of the edges of the wound was accomplished, the iris forming a portion of the cicatrix. No increase of the ocular vascularity followed these operations; but, on the contrary, the patient was relieved from the sensations of pain and tension he had before experienced. He promptly recovered, and a fortnight after the accident, there was no appearance of commencing traumatic cataract, but vision continued good. The glass must have struck obliquely, and glanced off, without penetrating the globe.

July 14.—*Syphilitic Ulcer on Glans Penis, and Syphilitic Tubercular Eruption on Skin, fifteen years after exposure.*—Dr. DURKEE exhibited a patient, a married man, who consulted him about the first of May last, on account of an ulcer on the glans penis. At that time the ulcer encircled the orifice of the urethra, and was about the size of half a dime. Three weeks before calling upon Dr. D., the patient discovered a small pimple close to the lower edge or border of the orifice, and made known his trouble to one of his neighbours, who attempted to cure it by applying a decoction of various roots and herbs, and an ointment of resin and hog's lard, &c. The pimple soon became an ulcer, and the inguinal glands on both sides became swollen. Patient states that fifteen years ago he contracted gonorrhœa, which yielded to treatment in a few weeks; that he never had been exposed except at the time above men-

tioned; and that he never had chancres externally. Although the ulcer was of a suspicious character, yet it was difficult to judge how much its appearance might have been modified by the applications which had been resorted to. Patient was put upon the use of iodide of potass in syrup of sarsaparilla, fifteen grains daily, for two weeks, and then increased the quantity to twenty-two grains daily for three weeks longer. It was then discontinued in consequence of a minute papular eruption with slight erythema, which it had brought out upon the face, chest, &c. This eruption faded away in a few days, and was followed by genuine syphilitic tubercles sparsely disseminated upon the face, head, back of the neck, and other parts, where they have remained with characteristic persistence, and without manifesting any disposition to ulcerate, up to the present time. Upon laying aside the iodide of potass, patient was put upon the internal use of dilute nitric acid, and lastly upon mercurials. Topical remedies, black wash, aromatic wine, nitric acid two drops to the ounce of water, cold water dressing, saturated tincture of iodine, saturated solution nitrate of silver, &c.

Patient was a sort of country trader, and was engaged in various speculations which he did not choose to entrust to any one else; it was impossible to prevail upon him to keep quiet for any length of time, and the desired effects of the remedies were thus in a great measure defeated. On two or three occasions, he took board in the city for six or eight days, during which time some amendment would take place. He would take courage from this, and insist that he was well enough to go home. Complained somewhat of Boston charges, and said that he would take the responsibility of the case upon himself; and that, if it did not go "on to his mind," he would take the blame. In this way the case progressed from bad to worse. The ulcer spread over a large portion of the glans penis, which became a good deal swollen, and the use of the bougie was required. The cervical glands became enlarged, fauces inflamed, deglutition painful, nocturnal pains in lower extremities, and the patient had but little sleep. He at length got thoroughly frightened, relinquished business, came to the city under the apprehension that his disease was of a malignant character, and that he would lose a portion of the penis if he did not get help soon. He now expressed a willingness to remain in the city, without regard to expense, as long as might be necessary. During the last few days, a favourable change has again taken place. His case excited particular interest from the fact that so long a time had elapsed since the virus was imbibed into the system.

ART. VI.—*The Microscope, and Renal Affections; and particularly that condition of the Kidney known as Bright's Disease.* By W. J. BURNETT, M. D.

WITHIN a comparatively recent period, medical science has gained two powerful auxiliaries; and which have contributed to a more rapid, and at the same time a surer, progress in its various departments than at any previous time. These are, Organic Chemistry and Microscopy; the one seizing hold of matter as to its constituent, the other as to its anatomical, elements. And, although for the most part they have been obliged to be pursued separately, yet, with a good fortune for science, their results have generally closely corresponded. From organic chemistry, undoubtedly, have the most progress and the greatest benefits been derived. But this is due to its having had the most numerous disciples, and the means by which it has been pursued having been more perfect than those of microscopy. This last seems to have sadly suffered from bad instruments as well as from bad observers. Its results, therefore, until quite lately, have been less decided than those from chemical analysis. But now, in the days of better optics, this difficulty is not to be tolerated; and in discrepant results we must shift their causes from the instrument to the observer. It is mainly due to microscopy that physiology and pathology have lately become very great mutual aids. As I have said in another place, pathology seems to be but an errant physiology, and often where the typical characters of function are very difficult to be traced in the latter, they peer out in the abnormal relations of the former. The microscope, in elucidating the ultimata of anatomy, does not grasp physiological action; but, by showing exactly what the material agents of a function are, we can comprehend all that should be expressed by that word. Beyond this we cannot go at present, and perhaps never will. Secretion, that corner-stone of organic life, is now understood to be due to the action of cell-membranes; but it will be a long time, I think, before microscopy shall have explained why an epithelial cell-membrane of the mammæ eliminates milk, while one of the liver eliminates bile.

But it is to the development which this science has given to cell-genesis and cell-agency that its greatest benefit to physiology is to be referred. For, if everything is not cells, as has been thought, yet the cell-doctrine is so widely true that it may be said to embrace pretty much all we know of organic life. We have been led, of late, to give the word Nutrition a more pregnant meaning than before. It is, however, based upon cell-action. Through what the microscope has done to illustrate this very nutrition, it enters upon the wide field of intricate pathological science; for, within a few years, many of the best pathologists have referred to what has been termed *abnormal* nutrition, the great part of that class of actions that have their expression in

the phenomena of disease. Of course this makes us look to the nutritive fluid, the blood, as the great source of all morbid action, and so we are led, on scientific principles, back to the "humoral pathology" of other days.

The health of an adult organic form may be briefly expressed as that condition in which the delicate balance of decay and reparation is so preserved that its physical identity is continued. From the capillary blood-vessels is effused the plasma, a basement material in which all cell structures arise, and from which are replaced tissues passing away. The intimate nature of this plasma takes on the type of the tissue in and for which it is effused; this is one of the reasons why the part is so exactly replaced. This constitutes normal nutrition. But when there is an unnatural condition of the blood, from a want of a healthy ratio of its elements, or a want of a correct relation between it and its containing vessels, this plasma does not appear to preserve its type-power, and, after its effusion, is not readily and faithfully appropriated. Hence, true nutrition ceases, and here begins what is understood by *abnormal* nutrition.

This abnormal nutrition may be above or below the natural standard: with the former, it is expressed by homomorphous; with the latter, heteromorphous products. Under the vague yet comprehensive term *inflammation* is included pretty much the same class of phenomena, but not thoroughly so; for, although we may say that in the inflammatory process there is an abnormal nutrition, we cannot yet say that all abnormal nutrition is of an inflammatory nature. The decision of this question, indeed, appears of little scientific importance, because we know little or nothing of inflammation except from its subjective phenomena. But this much appears certain, that the more the microscope is made to bear upon the early condition of diseased parts, the more are we led to think that the disease is based upon, or very quickly succeeded by, an inflammatory process. I think this particularly true of the diseases of the secreting organs of the body, whose very function and connection with the vascular system subject them to it more than others.

The viscera we can rarely have for examination during their earliest diseased condition, and, even if we do, the unaided eye is not able generally to recognize it on account of its interstitial and very elementary condition. The value of microscopy in this relation can scarcely be rated too high. But I especially appreciate its aid in deciding between post-mortem changes and real commencing disease; a decision that can in no way be positive in many organs with the naked eye, as I shall have occasion to illustrate in the following pages.

Then, again, our opportunities for the examination of an internal organ may occur long after the disease first appeared; it once existed, but has long passed away, and we see only its direct or indirect results. This is true of inflammatory more than of other diseases; it (inflammation) may have left the organ, as it nearly always does, with an impaired nutrition, below the natural standard; and with an *infra* nutrition for a period of time. Such curious changes occur then, that, judging from gross appearances, we lose all sight of the primitive disease. Now, unless it is in quite young subjects, the inflammatory process

always leaves its tracks behind it in a more or less tangible form, at least so that they can always be appreciated by the microscope, if not otherwise. I have already alluded to the value of these studies with the secerning organs of the body. But I know of no organs upon which these studies are more needed, for our correct comprehension of their diseased condition, than the *kidneys*. Aside from the manner with which practical experience has shown it to be true, it is apparent from the very structure and function of the organ. The kidneys are *excreting* organs; at any rate, their function does not seem to be one of a proper *secretion*. Their anatomy is as delicate and intricate as that of any other organ in the body, and their physiological importance is of the highest character, since they form the two great emunctories of the economy—and very slight pathological changes have both a corresponding intricacy and importance. Very slight deviations from their normal structure and function by disease give rise to very fully expressed pathological phenomena throughout the whole system. This importance has led pathologists to turn their attention very actively to these organs, but not with that amount of success, or that uniformity of result, that has attended equally zealous studies upon other tissues.

But, of all its diseases, that called Bright's disease is the most important, and although it has received almost unlimited attention, it is the one about which the widest difference of opinion has prevailed, and still prevails.

Its early history is well known, being first pointed out and its relations shown by Dr. Bright in 1827; and it was by him and Dr. Christison very thoroughly studied under the name of *granular degeneration of the kidney*.

Dr. Bright's investigations did not lead him to regard it of an inflammatory nature essentially, although inflammation might be one of its elements in some stages. The same may be said of the labours of Dr. Christison, who, however, took up more thoroughly the chemistry of the subject. After Dr. Bright, come the works of Gregory, Osborne, and many others, who, although they added largely to the experience in the disease, did not contribute much towards the elucidation of its intimate nature.

In a work soon after published, Rayer regarded the nature of the disease in a somewhat different light; it appeared to him as essentially a form of *nephritis*, which he called "néphrite albumineuse," in fact a *nephritis* attended with albuminuria; and the thoroughness with which the subject appears to have been studied, and the vast array of facts and cases for its illustration, have not their equal in the whole history of the disease.

The work of Rayer merits especial attention, not only because of the comprehensiveness with which the subject is treated, but because he has, I think, more than many others, regarded the affection, as subsequent and more intimate study would seem to show it to be, viz: of an inflammatory character, at least so, if it is a purely renal disease. It is not for me here to run over the bibliography of this affection. I have mentioned some of the authors who studied it previous to 1840, and whose eminence has made them authorities. I pass over to the more recent period, since the

microscope has been used in this direction. I should, however, mention that in 1839, at the suggestion of Rayer, Valentin subjected this disease to microscopic examination. His results were, that the tissue was infiltrated with granular and albuminous matter—in fact, that this organ is the receptacle of an albuminous exudation from the blood, and that this constitutes the disease; thus lending support to the views of Dr. Graves, advanced a year previous. (*Med. Gaz.* 1838.)

Gluge (*Anat. Mikroscop. Untersuch.* 1841) was inclined to regard the disease as of an inflammatory character, judging from the microscopical appearances it presented; there being the inflammatory corpuscle, &c.

Eicholtz (*Müller's Archiv.* 1845), in an article on the relation of this disease to that of the liver, maintains that it consists in the appearance of a new fibrous tissue in the kidney, or, to use his own language, "It is characterized by excessive development of a substance resembling fibro-cellular tissue, by which the peculiar glandular structure of the affected organs becomes compressed, and their function interfered with."

This view, a similar one to which was put forth by Henle some years previous (*Henle und Pfeiffer's Zeitschrift*, 1842), we shall refer to on a subsequent page.

In 1845, Dr. Geo. Johnson, of London, proposed a view quite different from the views of all who had preceded him (*Med.-Chir. Trans.* vol. xxix.), and the singularity of which, I confess, led me to turn my attention more particularly in that direction. To use his own words, "The disease then appears to be a fatty degeneration of the kidney, precisely analogous to the fatty degeneration of the liver." Since the appearance of his first article, several others have been published, all having the same bearing, and corroborating the doctrine first advanced.

There are without doubt some facts that apparently support this unique view, but I am not aware that it is generally recognized as tenable by leading pathologists. It is mainly to show that some carefully made experiments of my own have quite a different bearing, and that another view is tenable, that this article is written. To facilitate the comprehension of several succeeding points, I shall begin at the beginning, and state briefly the minute structure of the organ. It consists of the following: 1st. *The fibro-cellular matrix.* This is the framework of the others, and it is in and through it that they pass. 2d. *The Malpighian body.* This is the excreting organ, and consists of a bunch of terminal arterial vessels encased in an infundibuliform dilatation of the urinary tube. 3d. *The urinary tubuli.* These are tubes of about $\frac{1}{300}$th of an inch in diameter, lined with a very delicate basement membrane which is studded with epithelial cells. These tubes are tortuous and branching in the cortical or secerning portion of the organ, while they are straight in its medullary part. The epithelial cells become more and more delicate as they pass up from the calyces to the Malpighian body, and those lining the expanded portion of the tube about this last, are quite transparent.

It will be noticed that the above is according to the views given by Mr. Bowman, with which both my anatomical and pathological experience coincides. We have then a delicate mesh-work, through which permeates a system of fine tubes that end in a system of most delicate blood-vessels, which last have an arrangement for the transudation of a part of their contents into the former.* The question whether or not free fat exists anywhere in the healthy human kidney is of much importance, as bearing upon doctrines of disease. It is best decided, I think, by reference to results obtained from lower animals, for the artificial habits of man have changed somewhat the molecular condition of some of his organs. I think, with Dr. Gairdner (*Contributions to the Pathology of the Kidney*), that free fat does *not* belong to the normal human kidney, and I base my opinion upon a series of observations I have lately made upon many of the higher animals in both a wild and domesticated state.

In quite a number of species of the *Rodentia*, and some of the *Carnivora*, living in their natural wild state, I have never been able to find any free fat whatever. From this, I think it fair to conclude that, whatever may be the generality of appearances now presented, the human healthy kidney should have no fat, which would be the case, perhaps, if man was not at all artificial in his mode of life. Now, although the presence of free fat in the kidneys of man and the higher animals may be an *abnormal* condition, yet I think we are scarcely warranted in saying that all such kidneys are diseased; because experience has shown that it does not, unless completely surcharging the organ, interfere with the discharge of its normal function. The investigations of Mr. Simon (*Med.-Chir. Trans.* vol. xxx.) go to show that it depends upon irregular and unnatural conditions, and does not particularly affect the action of the organ. But that I might have the satisfaction of my own experience, I lately made a series of examinations for this object. They led to the same results. I found that, in wild animals, confined pretty closely and then well fed, free fat began to appear in these organs. The same I found true of numbers of old dogs and cats which lay in and about the house, their life passed in sleeping and eating. In all of these, the health appeared to be good, and in the few opportunities I had for observation there appeared no change in the discharge of the urinary function. In all these cases, I found the fat existing in the epithelial cells that line the tubes; often it was found in such quantities as to have supplanted the cells, being more abundant in their straight than in their tortuous portion. In no instance did I find it extend to the Malpighian body, which always presented a normal aspect. This, I think, satisfactorily accounts for the correct character of the function,

* To one who is not acquainted with it, the structure of the kidney cannot be explained without the aid of diagrams, and in the above brief description I have presumed much on the reader's knowledge, it being given only as a groundwork of the subject.—Vid. *Cyclopæd. of Anat. and Physiol.* pts. xxxii. and xxxiii. art. *Ren*, for a thorough illustration.

and although fat and epithelial cells loaded with fat may be found in the urine, as has often occurred to me, they in no way argue that the urine is not of itself normal, and was not normally excreted. Fat existing in these relations cannot, I think, ever lead to much harm, or be of a serious import, unless it be in such quantities as to obstruct the free passage of the excretion, or is an expression of that retrograde metamorphosis of tissue of which I have elsewhere spoken.

Dr. Johnson, in his various papers, regards this form of fatty kidney quite different from another which he thinks exists, and which is the one in his opinion constituting true Bright's disease. If he refers to free fat existing in another form as a primary product, I must say that such diseased condition of the organ has not fallen under my experience.

During the late appearance of cholera in 1849 in Boston, I had an opportunity to make a series of examinations as to this point in the human subject. Many of those who died were of robust health before attacked, and, as far as could be learned, were not subject to disease.

Aside from the slight desquamation of the epithelium from the tubes, and which belongs to the disease, the organs from different subjects presented microscopically a variety of appearances as to the presence of fat in their structure, indicating conditions of long duration, and quite distinct from that belonging to the disease of which they died.

It would appear, from what I then observed, that this kind of fatty kidney is not uncommon with the low classes of people, who are unfortunate in their conditions of life, whose food is bad and unequal, and living, withal, in an impure atmosphere.

In these cases, as in the animals above mentioned, the fat existed in a free form both in and out of the epithelial cells—the Malpighian body and its tubular sac remaining intact.

Associated with this fatty condition of the kidney was the same condition of the liver in most cases; which late experience has shown to be not uncommon in the classes of people I have mentioned.

On a subsequent page will be found a case, or cases, illustrative of this condition of the organ occurring under somewhat different circumstances of life.

Such are the relations of the presence of free fat as a primary product in the kidney; and, as a deposition, it must come in that same category, as the presence of the same in other tissues, with individuals in whom this fatty crasis exists generally. And I repeat that I think it may exist in these organs to quite an extent with impunity, in fact, until by its great quantity it may impinge upon either the excretory or efferent structures of the organs; then it is disease, because the function is impaired; which, in my opinion, occurs with a rarity bearing no proportion to the number affected with what is termed Bright's disease.

It is now for me to take up the subject proper, and describe what I consider to constitute the real pathology of this disease; to point out some of the

structural and functional peculiarities consequent upon its primary invasion, and to show how some of these secondary results may have been taken for the primary disease itself. In the first place, I should say that the term "Bright's disease" has been objected to by many, on the grounds that it expresses nothing of the nature of the disease, and its experience includes several different diseases. All this is very true, and especially the latter, if we adopt Dr. Johnson's view of the subject, for he says, "Acute and chronic desquamative nephritis, and fatty degeneration of the kidney, include the greater number of those cases to which the term 'Bright's disease' is commonly applied."

But I am of the opinion that the term should be preserved, not only because it honours and preserves the name of him who first described it, but because the disease Dr. Bright intended to describe is, in my opinion, single, and primitively of a uniform character.

There are many reasons why, in pathological experience unaided by the microscope, doubts should exist with some as to what class of morbid appearances should be intended to be expressed by these terms. This arises from the fact that the kidneys, more than any other organs of the body, simulate, from post-mortem changes, a variety of morbid aspects; and then again the disease really existing may not be at all apparent to the naked eye. This is so true that I have frequently heard professed pathologists declare that they are often unable to decide whether the organ before them is healthy or diseased.

On subsequent pages will be found cases, one showing that although albuminuria and other symptoms of this disease existed during life, the post-mortem showed that, according to *gross appearances*, the organs must be reckoned healthy; yet the microscope showed disease; the other showing that although the patient had no urinary or renal symptoms whatever, yet after death there were found gross appearances exactly like those of Bright's disease, the microscope showing it to be due to a curious congestion.

Cases like these may, perhaps, show why it is that some authors have declared that they have met with true albuminuria and other symptoms of the disease, with no pathological appearances whatever to correspond; and also that they have met with all the pathological appearances without a corresponding symptom. I will add that all this well illustrates how we are obliged ultimately to refer to minute investigations to correctly define the nature and nomenclature of a disease.

Bright's disease appears to me to be one of a decidedly inflammatory character; it is primitively an acute, or a subacute nephritis.

This opinion I have formed on the following data: 1st. Its general and symptomatic character. 2d. Its close relation with diseases of other organs of an inflammatory type. 3d. Its relation to pure nephritis of scarlatina. 4th. The microscopical appearances presented, there being invariably an inflammatory product found. And 5th. From the fact that such view enables us to reconcile pretty generally the phenomena of the disease.

Such being the heads, we will now take them up in detail:—

1st. *Its general and symptomatic character.*

It is not the good fortune of medical science for us to be often able to observe the very first symptoms of some diseases. This is especially true of the disease under consideration. Its commencement is, in the majority of cases, insidious—and the individual presents himself before you after the preliminary symptoms have passed. Still, I am of the opinion that, however obscure may be its commencement, yet if it can be carefully observed, it will be found attended with inflammatory symptoms, though sometimes of a quite light and transient kind; there may be no "lumbar pain," but there is a slight general febrile movement, some quickening of the pulse, and a feeling of general *malaise.*

But the history of recorded cases shows that in very many it is ushered in with well-marked symptoms, such as general febrile action, headache, local pain, &c. &c. These may be of very short duration, and the disease, once commenced, may pursue a course so chronic, that one would never mistrust its primitive type. This is certainly one reason why it has been considered by many as a non-inflammatory affection. Thus I have noticed in several cases I have carefully watched that for week after week, although there was constant albuminuria, I could find no febrile action, and the skin and pulse were normal. But at irregular intervals, there would suddenly appear a febrile movement, attended with local pain, and, although lasting but a few hours, was always followed by a greater quantity of albumen in the urine.

Where an inflammation of an organ passes into a very low chronic form, the nutrition of the part is so much altered, in fact becomes so low, that it is exhibited, if I may so express myself, little or not at all in the general system; and, like an indolent ulcer, it may exist for a long period of time, having none but local influences and relations.

When it occurs idiopathically, its etiology, according to all experience, shows that it can nearly always be referred to the same exciting causes which produce inflammatory affections in other organs. Such are exposures to sudden changes of temperature, to fatigue, and dampness; and, according to the accumulated experience of Rayer and other authorities, it is most common in the professions which habitually place men under these unfavourable circumstances of life. I am not aware, however, that the tendency of such experience is to show that these hard-working, muscular people are at all predisposed to fatty degenerations of any kind.

2d. *Its relation to diseases of other organs of an inflammatory type.*

Although Dr. Bright, in carefully studying this disease when it was first known, did not regard it of an inflammatory nature, yet he perceived that there was co-existent with it a general tendency in the system to inflammation. He was, therefore, induced to regard it as the real cause of various diseases of other organs, such as the heart, lungs, pleuræ, and liver, which seemed to supervene upon its presence.

He thought that the retention in the blood of elements that should be eliminated by these organs led to such alterations of its character, that these affections necessarily supervened. Of the coexistence of these affections there can be no doubt; and there are many recorded cases which would lead us to look upon the matter in the light of cause and effect. But since the early memoirs of Dr. Bright, and since experience has been accumulating in all directions, the medical world has been somewhat at variance as to what interpretation should be put upon these coincident phenomena. This has arisen from the fact that, after the review of a great number of cases of this kind, in very many, if not the majority, the diseases of the other organs have been found to be more chronic and of longer duration than that of the kidneys. And the more is this found to be so, as opportunities are the more abundant for carefully learning the patient's previous history.

The following questions then arise: When it thus occurs coincidently with these other diseases, are we not to consider the whole as a *blood-disease*, producing a low inflammatory tendency throughout the system, these organs being those in which it is expressed? Or are we to consider each as a local disease, producing, after a time, those changes in the blood that successively give rise to the affections of other organs?

At this time, the former view is most in accordance with observation—and what appears remarkable, it is supported by that very same class of cases which have been construed for the latter.

This is the view which has been adopted by Rokitansky (*Pathol. Anat.*, Syden. edit. vol. ii. p. 185), and since then by Rees (*On Diseases of the Kidney, &c.*, London, 1850), and Walshe (*London Lancet*, July 14, 1849). The opinions of such authorities as these, certainly, aside from other considerations, entitle this view to some weight. Moreover, it appears in accordance with some of the leading doctrines of the more modern pathology, which, by the light thrown upon them by organic chemistry and microscopy, appear to be recurring to those of other days.

Aside from the general tenor of cases, it is supported in the fact that all, or nearly all of the co-existent, connected diseases show themselves to be of a low inflammatory character. Such is the arachnitis as shown by Dr. Osborne, and the bronchitis, pleuritis, and peritonitis, and the pseudo-rheumatic disease which have been described by others.

But still more is this view supported by the fact of this disease supervening upon other diseases of a purely inflammatory character, or which have many inflammatory characteristics, having also a distinct and isolated origin. Such are chronic pleurisy and pneumonia, and especially phthisis. Recorded experience is quite full on this point, for it has at the outset arrested the attention of all observers. In chronic pleuro-pneumonia and in phthisis I have had the good fortune to have opportunities to see it, and that, too, under circumstances permitting careful examinations before and after death, from

which I was satisfied of its very short duration. At the end of this article I have introduced one of these cases as illustrative of this point.

I can see of no other construction to be put upon such phenomena than that a local inflammation, existing for a length of time, leads to a general dyscrasia; a low inflammatory tendency generally, and which would quite naturally have its expression in such an organ as the kidney, in which the nature of the blood is so carefully analyzed.

When occurring in those cases of phthisis that have fallen under my observation, there being many of the symptoms of true Bright's disease, I have been unable to see in these very emaciated subjects the least ground for supposing a fatty degeneration of the organ.

3d. *Its relation to nephritis of scarlatina.*

In studying the intimate nature and pathology of Bright's disease, the phenomena presented by the kidneys in scarlatina are of great importance, for from their unmistakeable nature they give something of a positiveness to our conclusions.

The recognition of renal trouble as forming a part of this affection is really of modern date. I am aware that it was hinted at by writers of twenty or more years since; and Rayer, in his comprehensive work (vol. ii. p. 429), in speaking of the few opportunities presented him, says that he "has noticed that the organs were quite often hyperæmic," &c. The recurrence, however, of this epidemic within a few years, under circumstances admitting of its most careful study, has given a decided character to the feeble views before entertained.

We now recognize it as a part of the disease, and I have been informed that, lately in London and Edinburgh, with some obscure cases in which the cutaneous marks were quite dubious, or did not exist, the disease was successfully diagnosed by the more prominently marked renal symptoms.

Aside from quite numerous papers found in various journals, the work of Dr. Miller (*The Pathology of the Kidney in Scarlatina*, London, 1850), recently published, shows the attention this subject has of late received.

In this disease it would appear that a morbific agent has been introduced into the system, having its expression in the cutaneous and mucous surfaces.

Whether the excited and inflammatory condition which the kidneys here presents is due to the direct action of the poison itself, or is indirectly due to the sudden and almost complete cessation of the cutaneous function, I am unable to say. But I think most probably the latter, since I have noticed similar renal troubles in patients affected extensively with other cutaneous diseases.

The point, however, is of no great importance in this matter; for you have, at any rate, an unmistakeable nephritis, supervening upon, or forming a part of, another disease. Consequent upon, or at least co-existent with this nephritis, you have, for a brief period, all or nearly all the symptoms of true Bright's disease.

Dr. Johnson, however (*Med.-Chirurg. Transact.* vol. xxix.), does not view

it as such, and thinks the phenomena here presented should come rather under the head of desquamative nephritis. But this appears to me quite unsatisfactory, for I consider *every* nephritis as desquamative, and almost necessarily so; exactly as is every inflammation of the true skin. This point needs some explanation as well as another, often urged, viz: the dissimilarity of this disease from true Bright's, as it commonly appears, as to its transient and curable nature.

In every inflammation there is a cessation of the normal nutrition of the part in which it occurs, and, if any nutrition at all exists, it is with the elimination of abnormal products. When, therefore, it exists in the kidney, an organ as we have seen of most delicate structure, the lost balance between the decay and reproduction of a part is quickly perceived. The epithelial cells, forming so large and important a part of its structure, cease to be nourished—they therefore "drop off" from the basement membrane to which they are attached, and minute granular, oleo-albuminous matter occupies their place, and we have then presented, both in the kidneys and in the urine, all the appearances of desquamation. Now, according to my own experience, it is of no account whether the renal inflammation be due to one cause or another; and I have alike witnessed these phenomena in cases of inflammation with tuberculous disease, and in common nephritis. To be sure, in a disease so acute in its action as that of scarlatina, the phenomena are best marked.

In regard to the second point, the transient and curable nature of the affection generally, it corresponds with our best ideas of the nature of nutrition and inflammation. In the first place, I should say, that the more recent experience with diseases of children, and since attention has been paid to examination of their urine as far as practicable, albuminuria and some of the other symptoms of nephritis are found to be with them of not uncommon occurrence, and yet of a very transient nature, coming and going like a light inflammatory trouble of the mucous air-passages. I have had occasion to see instances of it supervening upon severe infantile diseases.

It is well known that inflammation, as it exists in children, is somewhat different, as to its characteristics and results, from that of adults. There seems to be a far less departure from the normal nutritive type of the part, and if the normal nutrition is entirely suspended, there is not a marked tendency to an abnormal one leading to the production of adventitious products. And, if I may so express myself, the *type-power* of the part is still so active that its peculiar nutrition is not easily displaced, and when the disease subsides, the part soon gets back to its former condition. This is fully illustrated in every department of infantile pathology.

This is truly so with the kidneys in scarlatina; the vigour of the normal nutrition soon places the part as the disease found it; and although a most delicate structure, it preserves its proper continuity. In surgery, with infants, we well know that the younger and more vigorous the child, the more perfect

the repair. Exactly so is it, I believe, in scarlatina, and I have now in my mind some cases a friend related to me, in which adults having scarlatina, the renal symptoms never left them, but passed on to common Bright's disease. This has shown to me that, although nephritis may occur with impunity in children, it rarely does so with adults.

4th. *The microscopical appearances of the kidney in this disease.*

We have already been over the symptomatology of the disease. It now remains to refer to the material expressions of the disease as elucidated by microscopical inquiry, and it is hoped that the two may be made to appear quite compatible.

The conditions in which you may find the tissue of the organ after inflammation vary so much according to the duration or original severity of the latter, and its injury of the normal nutrition of the part, that some explanation may be necessary. But that this may the better be done, I will allude briefly to the gross appearances.

Dr. Bright thought that these might be considered as *three*. The first being that of ordinary congestion; the volume of the organ being much increased, the cortical substance being most abnormal in its aspect. The second is the true granulated kidney, there being apparently a granular deposit in the organ giving it the peculiar mottled aspect. The third is that of the most advanced stage; the organ is generally of a decreased volume, is contracted, and has a hard and often cartilaginous feel, with a palé anæmic aspect.

The first may be considered as that of the disease proper, and the last two as those of the results of the disease.

Rayer still farther divided the aspects, making *six* forms—perhaps a rather too detailed subdivision, since it somewhat complicates the subject. I need not here notice these divisions: but will only add that the first three correspond to the first of Bright; the fourth and fifth to the second; and the sixth to the third. Dr. Bright's division of the pathological appearances seems both the most simple and judicious, as it corresponds very closely with the progress and results of the disease.

We will now see how the microscopical correspond with the gross appearances, at the same time alluding more carefully to the details of the latter. The disease being originally in the vascular portion of the organ, it is to this that we are to look for the primitive lesions—the alterations of the other tissues being referable to this, either directly, as from mechanical agencies, or indirectly, through the affected nutrition.

In the few cases in which I have had the good fortune to be able to examine the organs in the early part of the first stage, I have found the arterioles and Malpighian bodies turgescent and increased in size, the latter often misshapen—phenomena which I think are not observed in simple *non-inflammatory* congestion of the vessels.

The size and general aspect of the tubes in this stage do not appear much changed, and the abnormal appearances are to be looked for in their contents.

An inflammation can exist but for a very short time in the organ before its effects are very appreciably perceived in the delicate epithelial tissues. The epithelial cells of the tubes of the cortical substance are found to have lost their natural delicate character, and to have a somewhat shriveled aspect. Moreover, there is some exfoliation, and both in the place of and in the cells will be found fine granular matter, and not unfrequently free fat in fine globules. This condition extends up to the Malpighian bodies.

The granular matter and the free fat I conceive to be the direct products of the inflammatory action. The healthy nutrition being suspended, the hyaline blastema which is effused from the blood-vessels does not suit the wants of the tissues to be nourished, and therefore is not taken up and appropriated; moreover, it is of a low character, and not capable of cell-attainment—resting on its granular stage of development. These granules, as I have elsewhere observed, consist of a minute particle of oil surrounded by an envelope of albumen; in fact, they are *utricles*, and not granules. In their process of formation, according to the *Acherson* mode of the formation of cells, if, whether from the quantity or the quality of the albumen, the conditions are not harmonious, the superabundant oil remains as such in the form of free globules. In all effused blastematous fluids, we know that oil forms in some shape a very important ingredient; and especially is this true of most inflammatory products in which the natural relations of the constituents among themselves is partially lost.

The very fact of the oil particles and utricles being in the cells, shows that they could get there only through the dyscrasia of the blastema.

Engorgement of the vessels throughout with the presence of granular matter in place of or about the passing away epithelial cells, besides often free fat, constitutes the microscopical appearances noticed at this stage of the disease. The alteration of the other tissues belongs properly, I think, to Dr. Bright's second form, the true granular kidney; although, strictly speaking, the changes we now see are referable to the agency of the first condition.

In the second stage another condition of things exists, the more active inflammation appears to have subsided, and what remains is of a low indolent character. Therefore, although we may see the effects of all this in the vascular system, yet the condition of the other tissues is what most arrests our attention. I may also remark that the feebleness of vascular action generally, which commences in this stage to be completed in the next, gives to the vessels often a less than their natural fulness.

The natural relation of the fibro-cellular tissue to the vessels and tubules, of which it is the supporting structure, is lost. From the abnormal nutrition it becomes hypertrophied locally or generally; in the former case giving rise to those small white spots, which, at this stage, are disseminated throughout the organ, and entitle it to the name of *granular*. Then again it may become atrophied, or more consolidated, leading to contractions and other appearances which we shall soon notice. In and about this fibro-cellular

tissue is effused more or less of this inflammatory granular matter. When in considerable quantity, it may form a fibrillated tissue by a linear arrangement of the granules into fibrillæ, these giving rise to white spots not unlike those produced by a local hypertrophy of the normal tissue. This I have seen in a few instances. This fibro-cellular tissue being thus changed, its passage-ways for the transmission of the tubes and vessels are quite altered, and misshapen tubes and compressed vessels are the results. The condition of the epithelial structures is like that of the first stage in character, but worse in degree. More granular matter and more free fat are generally found; and with these are sometimes found a bulged portion of a tube apparently completely clogged, its excretion being prevented by a constricted part below. There is one other appearance I have frequently noticed: this is the irregular and unequal form of the Malpighian bodies; some quite small, others very large—all due, in my opinion, to the irregular growth or action of the supporting tissue.*

The appearances presented in the third form are only an increase upon those we have just considered. The supporting tissue becomes more and more hypertrophied and condensed, and loses much of its former areolar character; low granular products are scattered through the organ, and the Malpighian bodies have a tough, bloodless aspect; all seeming to forbid any healthy or other action whatever of the organ. It certainly is a matter of some surprise that the blood transudes anything through such a structure. All these microscopical appearances which we have just traced belong, as must be seen, to inflammation and its results.

It now remains for us to trace how far such changes in the minute structure are compatible with the symptomatology and gross pathology of the disease.

The enlarged volume, the general turgescence of the vascular system of the organ, accord well enough with the microscopical appearances found. The albuminuria of this stage, however much of it may be referred indirectly to a general blood dyscrasia, is due, directly I think, to the vascular congestion, there being a serous transudation through the Malpighian tufts. That this is so appears to be shown from the fact that the Malpighian body is often found stained with the colouring matter of the blood, which not only indicates that there has been quite a congestion, but that the serum of the blood might pass in the same way. Some of the albumen found in the urine may come also from the abnormal albuminous effusion into the tubules; but it is mostly from direct transudation. This transudation I do not regard as due to mechanical relations alone, since, were it so, all congestion, whether inflammatory or not, should lead to the same results. This, however, is not true. There is an unnatural relation existing between the vessels and their contents, and this,

* These alterations in the fibro-cellular tissue are those which Henle, Eicholtz, and others have regarded as constituting the disease.

aside from the dynamic causes, leads to an easy separation of the albumen from the blood.

In the second stage, I conceive the albuminuria to be somewhat dependent upon other causes also; in fact, due to the results of the inflammation as much as to the inflammation itself.

The alterations of the fibro-cellular tissue which I have just pointed out lead to equally serious phenomena in the circulation. The Malpighian bodies and vessels generally are compressed, their action irregular, and with a pre-existing dyscrasia in the blood, an evil constantly fostering itself, it is easily conceived how they may strain the albumen from the blood. Add to this, constantly pressing blood from an inflammatory action on these compressed recipients, and you have, I think, a sufficient cause for the increased albuminuria of this stage.

In the third and last stage, these causes are still more active, and you find adequate reasons not only for the excessive amount of albumen, but for the very anæmic state of all the vascular tissues.

The atrophy and contractions of the second and third stages I conceive to belong purely to the sequelæ of inflammation, in exactly the same light as those of wounds and cicatrices.

During the more active inflammatory conditions of the disease, there is effused a considerable quantity of an adhesive plasma, which interstitially and otherwise forms attachments to various points. When the active stage of the inflammation subsides, and this ceases to be thrown out, an absorption of the hyaline portion takes place. From this, and from a concomitant condensation of the fibro-cellular tissue, I conceive the various contractions and puckerings so often seen to occur. What gives strength to my opinion in this matter is, that I have frequently examined the bridles of the contractions, and have found them to be an adventitious product.

The atrophy is dependent upon like causes, the increased amount and condensation of the supporting tissue at the expense of the vessels and tubes. This will appear a sufficient cause alone, when we consider for a moment the large proportion of space these last occupy in the healthy organ.

But I think there is another cause for the atrophy, and to which I have alluded in another place. I refer to *retrograde metamorphosis*, the nature of which change I need not here point out. It can well occur in an organ where the nutrition is so depraved; and a retrocession of some of the unnourished normal tissues back to their primitive granular type, and then a partial absorption of this last, afford an explanation not only of the obsolete character of some of the tissues found, but also of some of the diminution of size of the organ, and of the presence of free fat in the part.

I have selected from my note-book the following cases, illustrative of some of the points I have just treated. That they may be entitled to the name of cases, I have given them with all the general symptoms, yet in an abbreviated

form, and with a curtailing of some of those details which, if written, are never read.

The cases occurred in the practice of the Massachusetts General Hospital, Boston, with which I was then connected as one of the house-officers. Owing to the completeness of the means this institution furnishes for medical inquiry, I have thought them the more worthy of regard.

CASE I.—*Cardiac Disease of one year—Œdema of the Extremities for five months—Symptoms entirely Cardiac—Death at the end of the third week. Autopsy: General Dropsy—Disease of the Heart—An apparent, but no real Disease of the Kidneys.*—D. S., æt. sixty-four, entered the Massachusetts General Hospital May 4th, and gave the following report: One year since, without appreciable cause, began to have distress and severe palpitation in the cardiac region. This continued for seven months without any added symptom, when first noticed swelling of feet and ankles. This last, extending rapidly, was soon followed by that of the upper extremities. Has noticed no renal or urinary symptoms—and until the last two months has been able to be up and about; at the time of entrance he was quite feeble and unable to stand, and the œdema of each extremity was strongly marked. His countenance had that pale, lifeless aspect met with in cardiac and renal disease. Most of the symptoms seemed referable to the heart, where, upon percussion, there was a less than normal space of dulness; the impulse was preternaturally strong; the first sound muffled, and with an endocardial murmur. The second sound normal. The urine, upon examination (the urine of all the cases was the *urina sanguinis*, or that passed in the morning), had a specific gravity of 1.012, but was normal, chemically and microscopically.

The œdema increased, and symptoms of debility supervening, he died at the end of the third week from entrance. Previous to death, the urine was several times examined, but in every instance appeared normal.

Autopsy nine hours *post-mortem*:—

Brain.—Ventricles dilated with serum.

Lungs.—Compressed by considerable serum in both pleural cavities, and congested posteriorly.

Right upper lobe universally diseased, apparently like chronic pneumonia, being solid, grayish, non-friable, and with no pus or trace of tubercle. Tissue of lungs otherwise normal.

Pleuræ.—With old and strong adhesions over the whole of the upper right lobe.

Heart.—Pericardium with natural amount of serum. Weight of organ ℥xx. Left ventricle with walls red and firm, and having seven-eighths of an inch maximum thickness. Cavity not dilated. Columnæ carneæ not hypertrophied. Slight disease at the base of the aortal valves. Otherwise, organ normal. Some ætheromatous deposit in aorta, but no dilatation.

Alimentary canal normal.

Liver.—Not fatty, and apparently healthy.

Kidneys.—Each weighed ℥iij, *apparently* much diseased, being small and tough. Surface rough, and having a mottled aspect, being a white mixed with a rather light red. On incision, cortical portion quite thin, the tubular portion approaching near the surface. Colour, mottled as externally. The whole appeared quite like the representations of Bright's disease. On stripping off the investing capsule, small lymph-like portions came with it.

By microscopical examination, the tubules of the medullary and cortical portion appeared quite normal, not irregular or distorted. The same may be said of the Malpighian bodies. The epithelium had its usual healthy aspect, and there was no appearance of desquamation either local or general. No appearance of granular matter in the tubules or elsewhere in the organs, and no fat, free or combined.

The few white points on the surface of the exposed kidney, and also adhering to the capsule, were found to be little sacs filled with columnar epithelium; and their slight attachment to the investing tunic caused them to be torn from their beds, when the former was stripped off. No appearance of granular matter about the surface, and no distinct adhesions.

I have related this case, not because it illustrates disease, but because it aptly illustrates the opposite. I consider it a case well showing the value of microscopical aid in the pathology of this organ. The gross appearances were those of a chronic Bright's disease; whereas, the excreting structure of the organ appeared, microscopically, normal—and this last corresponds exactly with the symptoms during life. I do not pretend to explain the shrunken and unnatural size of the organs. Neither am I well acquainted with their condition in elderly people dying of any chronic disease. The mottled appearance both externally and internally was, it appears to me, due to the peculiar mode of the congestion of the organ at the patient's death; and such singular appearances, it is well known, are not uncommon.

Pathology makes quite as great an advancement by our discrimination of what is *not* disease, as of what *is* disease.

Case II.—*Pulmonary Phthisis of many months—Symptoms entirely Pulmonary—Albuminuria, without other Renal Symptoms, the last month—Death. Autopsy: Disease of Lungs and Kidney.*—M. M., æt. 23, entered the Massachusetts General Hospital October 27. According to her history, she had had for several months the usual symptoms of advancing phthisis. At the time of her entrance, the tuberculous disease appeared confined to the left lung, at the summit of which were the physical signs of a cavity. The subsequent symptoms were wholly, directly or indirectly, pulmonary—and the disease pursued a steady, though not rapid march. From time to time I had analyzed her urine, and did not find it abnormal except in the excess of urates which usually occur during the febrile disturbance of phthisis.

On March 10th, the urine was carefully analyzed, yielding the usual results.

On March 13th, it was again analyzed, and the following is the record I then made: Of a turbid, amber colour, and with a cloudy, rolling sediment. Specific gravity 1.021, moderately acid. By ebullition and nitric acid it appears *albuminous*, so that the whole is quite troubled in aspect. By microscope, the usual appearance of coagulated albumen in urine.

On nearly every third day from this time until her death, the urine was examined. The specific gravity fell to 1.010, where it remained; the albumen rather increased, and at no one time was it found less or absent.

The disease advancing, on April 18th she died with the ordinary symptoms of phthisis, and I do not think that during the last week she complained of any local renal symptoms.

Autopsy 6 hours *post-mortem*.

Head not examined.

Lungs extensively tuberculosed throughout. On the left summit one large cavity, and small cavities elsewhere.

Liver rather large, weight 4 lbs. 3 oz. Edges smooth and rounded, aspect paler than natural. Incised, it had a doughy, soft feel. A thin slice under the microscope showed the epithelial cells to be crowded with oil, and very numerous fat-globules occupied the hepatic tissue.

Spleen, weight ℥xiij; otherwise not abnormal.

Alimentary canal presented nothing remarkable.

Kidneys of normal size and shape; weight of each ℥vss. Incised, they presented nothing remarkable; there was a natural proportion between the medullary and cortical portions. The investing tunic peeled off, leaving a smooth surface, which, however, appeared congested. I well remember that they were thrown aside, as presenting nothing remarkable, by one who is well qualified to judge of gross pathological appearances.

By microscopical examination, a thin rasorial section of both the medullary and cortical portions showed the tubes as normal in size and shape. But their epithelium had not its usual full appearance. Some of it had disappeared, being replaced by granular matter, which last, in fact, seemed scattered through the tubes, extending even to the Malpighian bodies; which, however, did not appear so much changed as the efferent tubes. In the cortical portion the appearances of inflammation were most prominent, disappearing as one approached the calyces. Although I examined with particular reference to the point, I found, both chemically and microscopically, no appearance whatever of free fat.

This case illustrates many points to which allusion has been made in the preceding pages. It shows, like the first, the value of microscopical aid in our studies of this kind; but, unlike it, it shows what *is* disease. I may add, had it not been for the aid thus furnished, it would have been passed by as one of those remarkable cases in which albuminuria exists with the other usual symptoms, without any apparent renal alteration, and about which Dr. Graves (*Medical Gazette*, 1838) has written. It has, therefore, more than ordinary importance, touching, as it does, that class of curious cases.

It shows also how renal inflammation, of a subacute character, may supervene upon another disease of an inflammatory type, and which, from its long standing, gives rise to a prominent dyscrasia of the blood. Here, also, the microscope showed that, although the liver was crowded with fat, no trace of it was found in the kidney.

Case III.—*Cardiac Symptoms of six months—Excessive general Œdema and Pleural Effusion—Albuminuria, without other Renal Symptoms—Death. Autopsy: Disease of Heart and Kidneys.*—E. M., æt. 38, entered the Massachusetts General Hospital May 4. He then reported that, six months previous, he began for the first time to notice cardiac trouble, by palpitation and dyspnœa. These continuing to increase, one month since he relinquished all work. Œdema commenced two weeks since, and, aside from these, knows of no other symptoms.

At time of entrance, he was feeble, and scarcely able to stand—whole aspect that of one having great difficulty of respiration, which last was quick and short. Pulse regular, but full. Œdema of every extremity, but especially of legs. By physical examination no signs of pleural effusion, the pulmonary symptoms being referable entirely to the heart.

By percussion, an unusually large space of dulness over heart. Impulse about normal. First sound attended with a dry endocardial rustle at its close, which sound extends up line of aorta. Second sound abrupt, and attended with a slight murmur.

The urine examined was loaded with phosphates. Specific gravity 1.020. By the usual tests, there was an appreciable, though not large, quantity of albumen. The microscope showed considerable minute granular matter like that of inflammation, in the deposit.

The march of the disease was rapid. Symptoms of pleural effusion appeared; the œdema increased; and the dyspnœa becoming quite urgent, he died two weeks after entrance with the usual symptoms of asphyxia.

Autopsy eighteen hours *post-mortem.*

Head.—Brain and membranes normal, but ventricles dilated with serum.

Chest.—One quart of serum in each pleural cavity; lungs much compressed thereby, but tissue normal.

Heart.—Pericardium contained one pint of serum. Weight of organ 1 lb. 6 oz.; of a rounded shape, and apex flattened. Cavity of left ventricle dilated to three times its normal size, but its walls not thickened. Columnæ carneæ prominent. Aortic valves nearly natural. Right ventricle and both auricles with their cavities a little dilated, but their valves healthy.

Alimentary canal presented nothing remarkable.

Spleen.—Weight 13 oz., and full of blood; otherwise normal.

Liver.—Weight 3 lbs. 8 oz., of healthy aspect and not fatty.

Kidneys.—Weight of each 5 oz., presenting nothing peculiar externally. Incised, the ratio of the two portions normal; but the whole had a red, congested aspect. Scattered through the cortical portion were white masses, circumscribed, and varying in size from that of a millet seed to that of a small pea. Stripping off the investing tunic, it carried with it minute portions of the kidney, leaving the surface quite rough, and in which were imbedded several white masses like those seen in the interior.

On the whole, according to gross appearances, if we except the white masses and the adhering tunic, the general aspect would not differ, I think, from that of many simply strongly congested kidneys I have seen. And certainly it had none of that peculiarly mottled and granular aspect of ordinary Bright's kidney.

By microscopical examination, a thin rasorial section of the cortical portion showed the tubes of Ferrein and the corpora Malpighiana to contain granular matter and the so-called Gluge's inflammatory corpuscles, at the expense of the normal epithelium. Many of the epithelial cells were badly shaped or shrivelled. The tubes of the medullary portion seemed but little affected.

The white points spoken of were composed of a delicate fibrillated tissue, the fibrillæ being made up of the same granular matter arranged in a linear series; a view borne out by the fact that the tubes immediately surrounding these points had much more granular matter than the others. No fat in a free state was found.

In this case, there was nephritis of probably long duration, but having a slow progress. The fibro-cellular tissue does not appear to have been much affected, and therefore we did not find corresponding changes in the size and shape of the organ.

The white masses, situated as they were in the midst of a congested tissue, and so well circumscribed, might well have passed for crude gray tubercles,

had they not been microscopically examined. I may add, there is every probability that here the cardiac disease existed first.

Case IV.—*Œdema of Lower Extremities, with Renal Symptoms, nineteen months—Cardiac Symptoms, with Œdema of Upper Extremities and Face, eight months—Albuminuria—Death. Autopsy: Disease of Kidneys and Heart.*—M. J., æt. 17, entered the Massachusetts General Hospital February 26, and gave the following report of the history of her disease: Fifteen months since, while at usual work, noticed in morning a slight swelling of feet. For several months, this did not increase; but after that, could not wear her usual shoes. Eight months since, began to have some cardiac palpitation, with a dry cough and dyspnœa. Soon after this, œdema of upper extremities commenced, attended with much general languor and depression. At time of entrance was quite feeble; countenance had a pale, flabby aspect, but no œdema of it or upper extremities. No local renal symptoms, and no pain upon pressure over region of kidneys. Œdema of legs up to knees. No præcordial prominence, but an unusual large space of flatness on percussion. First sound attended with a well-marked bellows murmur, which is very rough under right clavicle, and is transmitted to back and up carotids. Second sound masked by a coarse murmur over aortal valves. Both sounds not diffused. The pulmonary signs were those of oppression at base of chest, where there was flatness on percussion, and some crepitus, as though from pulmonary œdema. Urine examined, had a specific gravity 1.020, acid, and copious precipitates of albumen by both heat and acids. By microscope, the usual albuminous casts of the uriniferous tubes.

From this time no new symptoms appeared—the progress of the disease consisting in an increase of those then existing. Such were the palpitation, cough, dyspnœa, and general œdema, the last of which was so excessive that the skin of the legs burst, and the eyes were closed.—Patient died on May 5th.

Autopsy twenty-four hours *post-mortem*.

Œdema.—Legs bursting with serum—

Left pleura contained	. . .	one pint of serum.
Right pleura "	. . . .	two pints of "
Pericardium "	. . . .	℥iss " "
Peritoneum "	. . . .	three pints of "

Lungs.—Much compressed by effusion, but tissue normal. Old pleural adhesions at both sides, but no recent lymph.

Heart.—Weight 8 oz., red and firm; both ventricles somewhat hypertrophied. Cavity of left somewhat enlarged. Mitral valve so contracted as scarcely to admit the tip of the little finger. The aortal valves similarly contracted, with a trace of vegetation on each. No ossification.

Alimentary canal presented nothing remarkable.

Liver and *spleen* normal; the former not fatty.

Kidneys.—Weight of each 3 oz.; rather small, and apparently quite diseased. Surface nearly regular. External tunic stripped off smoothly, and leaving no trace of redness except two or three defined spots. Incised, whole aspect rather pale. Cortical substance opaque, yellowish-white, or fawn-coloured; not properly mottled, but looking as though infiltrated with albuminous, granular matter. Medullary portion not of remarkable aspect; not flaring, or abnormally approaching the periphery. On comparing the whole appearances with some of those of Rayer's Plates, the case corresponded quite closely with that of Fig. 4, Pl. vi.

By microscopical examination, a rasorial section of the cortical portion

showed the tubes of Ferrein and the Malpighian bodies much misshapen, often contracted and dilated, and many of them crowded with a fine granular matter existing in the place of the usual epithelium, the cells of which, when present, were similarly loaded with granules. The tubules of the medullary portion had a like appearance, though less marked. The fibro-cellular tissue was both hypertrophied and condensed—and was infiltrated with the same granular matter, though of a more albuminous nature. No appearance of free fat by the microscope; and the granular matter, treated with ether under the microscope, only very slightly disappeared.

A portion of the organ was sent to an excellent chemist for analysis; and he returned the following result: "The whole is mostly albuminous and fibrinous, with scarcely a trace of free fat."

I have thought this a fair example of chronic nephritis, going on to its last and worst form; and the kidneys presented, both grossly and microscopically, a good specimen of the appearances found in the third stage of Bright's disease, according to my own experience.

The presence of such quantities of inflammatory products, and the almost entire absence of fat, are well worthy of note. Unlike the last, it is probable that here the disease of the kidney existed first.

Case V.—*Œdema and Ascites of nine years coming on after Child-birth —Diarrhœa of three months—Albuminuria—Death. Autopsy: Disease of Kidneys and Fatty Liver.*—R. S., æt. 42, entered the Massachusetts General Hospital, Sept. 4th, and gave the following history of her case. Nine years since, after birth of child, noticed, without other symptoms, an œdema of the feet. This gradually extended to abdomen, and even into chest, so that the pulmonary function was impeded.

Has noticed no renal or urinary symptoms, except variation in quantity of urine, which has always been in an inverse ratio to the amount of dropsy. Three months since, a simple diarrhœa coming on, the ascites almost entirely disappeared. Three weeks since, this diarrhœa became aggravated, reducing her to her present feeble condition.

At time of entrance, there was an oppressive ascites, and much œdema of the lower extremities.

The urine was albuminous to the ordinary tests. The diarrhœa did not seem at all amenable to treatment, and four days after entrance she died, apparently from debility.

Autopsy eight hours *post-mortem*.

External aspect.—Adipose tissue everywhere abundant, and one inch thick in parietes of abdomen.

Brain normal.

Lungs healthy, but little pleural effusion.

Heart normal, but mediastinum loaded with fat.

Alimentary canal had a tolerably healthy aspect, except the lower end of colon, where the mucous membrane was reddened and injected.

Liver.—Weight 5 lbs.; large, and having rounded edges, of a light fawn colour, and a doughy, flabby feel. Incised, its aspect was quite pale and lifeless. It greased the knife, and a section put under the microscope showed the acini crowded with fat globules, which rendered pale and almost replaced entirely their tissue.

The few hepatic cells seen were loaded in the same way.

Kidneys.—Weight of each 3 oz.; small, but of usual shape. Rather pale,

but surface not rough. Incised, presented a pale, anæmic, tough aspect. The cortical portion had a decided granulated aspect, not really mottled. Tissue was rather firm. The tunic stripped off, carried with it minute portions of the organ, leaving the external surface with the same pale anæmic aspect as the internal.

In fact, the whole appearance of the organ was quite like that of the last case, and in comparing it with Rayer's plates, I fixed upon the same figure, as best illustrating its aspect.

By microscopical examination, a rasorial section of the cortical portion showed the tubes of Ferrein and the Malpighian bodies to be much misshapen, and their interior more or less occupied with granular matter, which was even more abundant than in the last case. But little healthy epithelium was seen. The fibro-cellular tissue was considerably changed, and infiltrated with granular and albuminous matter. No free fat visible, except here and there a small globule. Tried with the common tests of heat and ether, the organ yielded no perceptible amount of fat.

Both the gross and microscopical appearances met with in this case correspond, as will be seen, quite closely with those of the last, alongside of which I have introduced it, from the difference as to the general adipose condition of the two patients. In the former one, it will be remembered, the fatty tissue was quite absent; the liver contained but little free fat. In the latter, the opposite condition everywhere exists, the liver loaded with it. But in both the same condition of the kidney is found; a fact which certainly bears upon the fatty nature of Bright's disease, which Dr. Johnson has characterized as "precisely analogous to the fatty degeneration of the liver."

Were it not for burdening the article with details, other cases of similar character and importance might be introduced; but they would not, perhaps, illustrate any better than the preceding, the idea I have intended to convey as to the nature of this disease. In carefully recording cases of this disease, as they occur here and there, one is much surprised at the want of variety as to both gross and pathological appearances met with. In one well-marked, yet ordinary case, will be found nearly all that may subsequently be seen in the fifty that follow.

The following and concluding case I do not introduce as particularly illustrative of disease. It is one, however, possessing more than ordinary interest, for, in my opinion, the kidneys were found in just that condition we should expect to find them in chronic Bright's disease, according to the *new view* of the subject; whereas there do not appear to have been at all any symptoms of that affection. As a whole, it simply illustrates what I have remarked on a preceding page, viz: that there may be here, as well as in any other organ, a simple adipose accumulation with comparative impunity, so long as the fat does not occur in, or injure, the real functional tissue of the organ.

CASE VI.—*Cancroid Disease of Antrum—No Renal or other Symptoms—Partial removal of Disease—Supervening Pneumonia—Death in two weeks. Autopsy: Disease of Lungs and Fatty Kidneys.*—R. M., æt. 62, entered the Massachusetts General Hospital June 26th, and gave the following report:—

Has always enjoyed fine and robust health until five months since, when,

following continued dull pain in right antrum, there appeared in that region a tumour. Aside from loss of sleep caused by pain, general health has not been disturbed. Has had no hepatic or renal symptoms; and, at time of entrance, appeared quite well, with the exception of local trouble.

Three days after entrance the tumour was partially removed, and proved to be one of those cancroidal affections starting from the epithelial tissue. One week after, a general febrile disturbance ensued, and there appeared both the rational and physical signs of inflammation of the left lung; under which, two weeks from entrance, the patient sank and died.

I regret that no opportunities presented for examining the urine for albumen during life. It was reported as not unnatural, and there were no symptoms to call one's attention to its chemical examination.

Autopsy fourteen hours *post-mortem.*

Head not examined.

Lungs.—The lower lobe of right lung presented all the appearances of pneumonia of the second stage. Right lung natural.

Heart normal. *Alimentary canal* healthy. *Spleen* healthy. *Liver* of natural size and appearance. Examined microscopically and otherwise, it appeared *unusually free from fat.*

Kidneys.—Weight of each 4½ oz., of natural shape and colour. Incised, tissue not at all congested, and of a light fawn colour, having the usual firmness; but there appeared to be a disproportion between the cortical and medullary portions of the organ—the former dipping down to near the pelvis, while the latter appeared buried in it. Stripping off the tunic, the surface was smooth, not pale or granulated. On the anterior surface, and at the lower extremity of the left kidney, was a cyst one-third of an inch in diameter, and apparently set in the tissue of the organ, being filled with a dirty, brown-coloured fluid. Both pelves contained quite an amount of free fat.

Specific gravity of kidney 1.042 (1.046 is, I think, its healthy specific gravity).

By microscopical examination, the contents of the cyst were found to be numerous epithelial cells and scales, of nearly all sizes and shapes, nucleated, but containing free oil, which also existed in considerable quantity out of them, all floating in a dull-brown liquid.

The external surface of the cyst rested in immediate contact with the renal tissue. Rasorial sections of the cortical and medullary substance showed the tubes somewhat enlarged and rather irregular, and many of their epithelial cells were distended with oil globules, which also were quite numerous in the free state. In some places, the amount of fat seemed to almost block up the passage of the tube, as shown by transverse sections. Fat globules, but *no fat cells*, were also seen in the matrix or fibro-cellular tissue. The Malpighian bodies appeared unchanged, and contained no fat, either free or combined.

A chemical analysis of the organ showed a very large per centage of fat.

The bladder had a normal aspect; but free fat existed on the surface of its mucous membrane, and its epithelial cells had much in their interior.

I will conclude by saying that, with this and the preceding cases, we have had an illustration of *fatty liver* with Bright's disease, and yet the kidneys almost free from fat; and also *fatty kidney without* Bright's disease, and the liver almost free from fat.

Boston, *July*, 1851.

ART. VII.—*Case of Molluscum developed by an Injury, and presenting, under the Microscope, the Characters of Medullary Cancer.* By HENRY H. SMITH, M. D., Assistant Lecturer on Demonstrative Surgery in the University of Pennsylvania. (With three wood-cuts.)

THE following case is deemed worthy of record, as illustrative of the character and pathology of that rare form of tubercular disease designated by dermatologists as Molluscum.

Mrs. M., æt. about fifty-five years, born in Scotland, but long resident in the United States, the mother of eight children, the youngest of whom is over sixteen years of age, has enjoyed robust health during most of her life. She is possessed of much intelligence, is of an active disposition, though weighing one hundred and eighty pounds; has a soft, delicate, and vascular skin; considerably freckled; hair naturally sandy, now mixed with gray; eyes grayish-blue; cheeks rosy, and "has always had pure blood," seldom or ever suffering from boils or other eruptions.

In May, 1848, whilst in perfect health, she pinched the skin on the radial side of the forearm, about two inches above the wrist, in a cupboard, but paid little attention to it at the time. Six weeks afterwards, she noticed a thickening or welt in the line of the contusion, and, some time later, saw a little tumour like a wart or mole near the same point. This tumour gradually enlarged, and was soon followed by two others of the size of peas; "they were simple hard lumps, without redness or pain."

After several months, the tumours began to enlarge, but the skin was not changed; and after another interval the largest lump attained the size of a walnut.

Fearing that "it would turn to a cancer," she consulted me in March, 1849, ten months after the accident.

At this time there were six or eight spherical tumours, varying from the size of a pea to that of an egg, on the forearm near the wrist. The largest one was slightly lobulated, firm, and resisting, with the smaller tumours at its base; they were all movable, devoid of sensibility, and with the skin of the usual colour, and movable on them. An occasional stinging pain was, however, felt along a thickened band (believed to be lymphatics) which extended across the flexor muscles to within one inch and a half of the bend of the elbow, where it was gradually lost. Being uncertain as to the character of the complaint, she was simply directed to cover the tumour with kid spread with soap plaster, and to use the iodide of potash internally. After continuing this treatment, with the addition of iodine ointment, for near two months, no change was perceptible in the tumours, except that the largest one had become flattened at the top, and wider at the base, in consequence of the pressure of the bandage. The skin appeared natural, except that it was slightly creased, and adherent to the tumour in the creases. There was, as yet, no pain of

consequence, the chief suffering being mental, the patient being depressed with the common idea of cancer. As she strongly objected to the use of the knife, chloride of zinc was freely applied, and the tumour sloughed out. The ulcer healed readily, the indurated chain softened during the suppuration, and the patient seemed to be cured. From this time until September, 1850, I did not see her, but was again consulted in reference to a new series of tumours near the elbow, at the point where the former indurated chain had ceased. On examining these, the same appearances were presented as had been noticed at the wrist; to wit, several spherical, firm tumours, of the size of peas and bullets, with one about the size of a walnut; skin unchanged, movable, and without signs of inflammation, but with occasional fits of pain; general health fair. Treated by iodine.

In another month, October, 1850, I again saw her in consequence of the tumours having been bruised by carrying a basket; the largest lump was now quite painful, and had rapidly increased in size. Fifteen or twenty new shot and bullet-like tumours had formed around it, and another indurated line could be traced in the course of the lymphatics on the inside of the arm nearly two inches above the elbow. Caustic was again applied to the largest tumour, and a large portion of it sloughed out. This ulcer, however, did not heal, but soon showed a malignant character, with thickened everted edges, ichorous discharge, and a constant disposition to slough, in addition to which, another small tumour appeared at the old cicatrix near the wrist.

The ulcer at the elbow, extending around two-thirds of the arm, soon opened the basilic vein, and gave rise to frequent hemorrhages, which were only controllable by lint for a few hours, when the bleeding was renewed. The general health now began to fail, the digestion became impaired, and the tumours appeared above the elbow, although the axilla continued *perfectly healthy*.

Hemorrhage returning from time to time, and it being impossible to check it, it was decided, in a consultation with Drs. Horner and J. M. Wallace, that, under the circumstances, the arm had better be amputated. Accordingly, I took it off (Dec. 15, 1850), before the medical class of the University, near the insertion of the deltoid muscle. Fig. 1 represents the appearance of the arm with the fungous ulcer immediately after the operation.

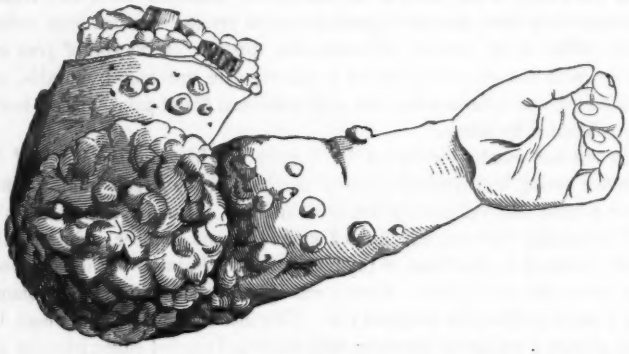
The stump was dressed with the cold water dressing, healed readily, and in four weeks the patient seemed quite as usual. In January, however, she complained of pain in the forehead over the right eye, and I found two new small tumours on the os frontis, just above the right frontal protuberance. These tumours soon became exquisitely painful, but otherwise resembled those formerly seen.

Under anodynes, tonics, and alteratives, including the preparations of Fowler and Donovan, her general health improved for a short time; though the violent neuralgic pain distressed her from time to time, and only yielded to an ointment of aconitina gr. j, cerate ʒj, applied to the part.

Under this treatment she partially resumed the business of her store, but complained of being excessively sensitive to cold.

Feb. 18*th.* I again saw Mrs. M.; the tumours had enlarged, and many others were apparent on the head and on other parts of the body, being the

Fig. 1.



first time that the skin seemed to be generally contaminated. Of this there can be no doubt, as my previous examinations had been thorough. The tumours on the head were nearly immovable, but those on other parts, as the stump and body, presented the original characters, though more scattered; one or two on the shoulders were red, and resembled a mulberry wart; and some of them were also highly sensitive. Her appetite had now failed, her digestion was torpid, and her general health consequently impaired, giving signs of disease not to be mistaken.

March 25*th.* Great increase in the number of tumours; those on the head lobulated, and the largest one livid and vascular on the surface, resembling fungus hematodes previous to ulceration. All the tumours are subject to "burning and shooting pains." Ordered anodyne, &c. &c.

April 1*st.* Disease progressing; complains of pain and tenderness in right hypochondriac region.

21*st.* Sufferings very severe; no ulceration in tumours; debility increasing; dimness of vision in right eye (corresponding to largest tumour); partial deafness.

May 2*d.* From the rarity of the case, several professional friends visited her. No change in the treatment.

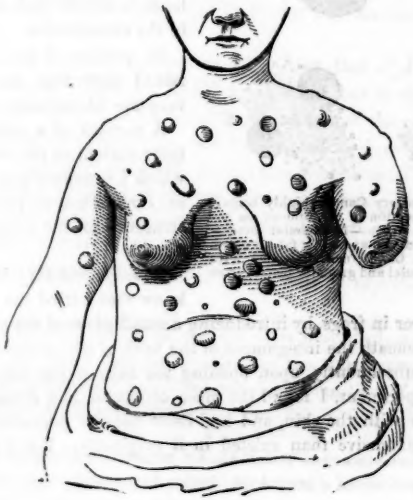
8*th.* Since last date unfavourable symptoms have increased; evident cerebral disorder; no vision in right eye—lid paralyzed; general tremors; unable to turn in bed; no power to retain food.

11*th.* Moribund, but yet sensitive to pressure on right hypochondriac region. Died at 6 P. M., May 11th, 1850, being more than two years since the original injury.

13*th*, 10 A. M. Being unable to obtain permission to open the body, I was obliged to be satisfied with an inspection, and with an examination of the largest tumour, as far as it could be done without opening the head. The body had been in ice thirty-six hours, and was about being prepared for the coffin, and her sons insisted on being present. All, therefore, that could be learned was as follows: The limbs and body presented the ordinary plumpness, there being comparatively little emaciation except about the chest and abdomen. Rigidity natural. Head presented ten tumours, most of which were anterior to the parietal protuberances, and varied in size from a musket-ball to an egg. The skin over the larger tumours was becoming vascularly discoloured, as noted before death. On incising the largest tumour, it cut with about the firmness of brain, being neither pulpy nor cartilaginous; appeared of the consistence of brain; had a pearly-white colour; showed no points of blood, and appeared entirely devoid of blood-vessels. It had been beneath the periosteum; the latter was thickened about the circumference of the tumour, but the periosteum and the bone at the centre of the tumour had been absorbed, so that the finger could be passed into the cavity of the cranium. The dura mater was not perforated. The eye of this side (right) was somewhat protruded, leading to a suspicion of pressure through the orbitar plate by some of the other tumours.

The skin on the neck, chiefly on its front, contained about eleven tumours of the size of a pistol-bullet, spherical, with defined base and skin unchanged. On the chest there were about thirty of the same consistence, varying in size, as shown in the cut (Fig. 2). On the abdomen, on the stump, in the

Fig. 2.



axilla, and above the clavicle of the amputated limb, were many more. The sound arm presented some, and the lower limbs had a few small tumours like peas. The back was thickly studded with them, some being purple, others unchanged, but the colour was deemed due to *post-mortem* changes. On the whole body there were at least one hundred and sixty or eighty tumours, entirely in the skin.

Having submitted a section of the largest tumour on the head to Dr. Jos. Leidy, I received from him the following note and drawing of the appearances which it presented under the microscope:—

Dear Doctor: The fragment of a tumour you requested me to examine exhibits beneath the microscope a structure consisting mainly of rounded or oval polyhedral cells, averaging the $\frac{1}{1600}$th of an inch in diameter. They are very delicate, so that slight pressure or the endosmosis of water is sufficient to burst them. Some have finely granular contents with a visible nucleus, but the greater part of them are more or less distended with coarse granules, resembling oil, completely concealing the cell-nucleus. It is this coarse, granular, oleoid matter which gives the opaque, white, cerebriform appearance to the tumour.

The cell-nuclei are usually single, globular, granular, about the $\frac{1}{3500}$th of an inch in diameter, and contain a minute central nucleus.

Fig. 3.

Structure of Medullary Cancer, highly magnified, taken from a section of the tumour on the head, 36 hours after death.—1. Globular cancer-cell, with visible nucleus, and a few fat granules. 2. Elliptical do. 3. Cancer-cell distended with fat granules. 4. Nuclei and granular matter from cancer-cells.

A quantity of the same kind of granular matter existing within the cells was observed exterior to and surrounding the latter; but this, I suspect, escaped from many of the cells which were ruptured by the violence to which they were subjected in the examination.

No portion of the fragment contained more than a mere trace of very fine filamentous tissue.

A portion of a tumour from the same patient as the above fragment, which I examined last winter, so far as I recollect, corresponded in its structure to the foregoing description.

It may probably interest you to know that I tried the experiment of inoculating cancer in frogs, by introducing a small piece of the above fragment of the tumour beneath the integument of the back of one of the latter animals. Several weeks subsequently, upon opening the skin of the frog, to learn the result of the experiment, I found the piece of cancer had formed a true vascular connection with the skin, and had itself become pervaded with a capillary rete more extensive than existed in it originally. For a more detailed

account of this and similar experiments,I refer you to the last number of the *Proceedings Acad. Nat. Sciences.*

Yours, very truly,

JOS. LEIDY.

Dr. Henry H. Smith.

Summary.—A patient, aged fifty-five years, previously in good health, pinches the skin of the arm; six weeks subsequently she notices a spherical tumour, with a broad base, firm and resisting, movable, and with the skin unchanged; no pain in the part; no other tumours elsewhere. Ten months after this, the principal tumour has attained the size of an egg, is lobulated, and with smaller tumours around its base; indurated lymphatics extend from it up the limb, but the skin remains natural. Caustic removes the tumour, and the ulcer heals. Six months subsequently the tumours re-appear near the elbow. Caustic applications remove a considerable part of the enlargement, but leave an unhealthy ulcer, accompanied by sloughing and frequent hemorrhage. New tumours form above the elbow, are removed, and then, the general health becoming impaired, the limb is amputated, nineteen months after the original exciting cause. Notwithstanding the absence of lymphatic disorder about the stump, the tumours re-appear in six weeks upon the head, then all over the body, excite violent neuralgia, and result in death about two years from the first appearance of the disease. General inspection and microscopic examination indicate the presence of albuminous matter, similar to that of medullary sarcoma.

Remarks.—The rare occurrence of Molluscum, and the want of accurate accounts of its pathology, have tended to render our knowledge of it somewhat indefinite.

The earliest case recorded, appears to have been that of John Reinhardt, reported by Professor Tilesius, at Muhlberg, in 1742, but to which he assigned no name, though he described minutely the characters of the complaint. The patient, who was in his fiftieth year, had his body at birth covered with small excrescences. When fifty years old, these excrescences varied in size from a pea to a pigeon's egg, were of various forms, some being like warts, others oval; the prevailing colour being red, with here and there one of a dull yellow or brownish hue. In the centre of the largest was seen a small opening, *from which small thickened vermiform matter can be expressed like "comedones."**

Bateman recalled attention to the disease thus described, designating it as molluscum, and defining it "as characterized by the appearance of tubercles of slow growth, little sensibility, and of various sizes, from that of a vetch to that of a pigeon's egg. He also described two varieties in one, which he deemed

* Clinical Lecture on Molluscum, by Francis Hale Thompson, London Lancet, May, 1841. Du Molluscum; recherches critiques sur les formes, la nature, et le traitement, par Dr. Jacobovics, Pesth, 1840 (see Dr. Patterson's paper).

contagious; a *milky fluid* could be pressed out of an opening in the tumour, while in the other there was no discharge.*

Alibert and Biett employed the name of Molluscum from "the resemblance of the tubercles to the eminences which grow on the bark of the maple tree."†

Rayer places the disease in question under the head of cancer mollusci-forme, and describes it as characterized by tubercles which are either flat or slightly rounded in the centre, indolent, of the same colour as the skin, and of a size varying from a five cent piece to that of five francs, the anatomical characters of which were a very considerable thickening of the corium, the tissue of which had *become hard and of the consistence of scirrhus.*"‡

Cazenave and Schedel follow Bateman in the description of the disease, adopting his two varieties, of molluscum non contagiosum and molluscum contagiosum. In a patient seen at St. Louis affected with prurigo senilis, they saw a number of small tumours spread over different parts of the body, the largest as big as a nut, the rest not larger than peas; they seemed to be *formed of dense fibrous substance and were not painful to the touch.*§ "Contagious molluscum is a very rare disease, and has not been met with in France."‖

Dr. Patterson¶ in an excellent paper on the contagious variety, presents drawings of the structure of the tumours, showing the tubes and other portions of a structure indicative, as he believes, of their being obstructed sebaceous follicles.

Dr. Henderson** has seen five cases corresponding with the description of Bateman. "Examining the structure of these tumours, he found them to consist of vertical cells opening towards the centre and discharging their contents into a common cavity, which communicated with the exterior by the excretory opening. The contained matter consisted of nucleated cells, about $\frac{1}{1000}$th of an inch in diameter."††

Dr. Washington L. Atlee‡‡ reports a case in a female in which the skin was covered with tumours varying in size from a pin's head up to that of a large nut, beneath the skin and firmly attached to muscular and tendinous tissue. The removal of one of the tumours on the thigh showed it to be the *fibro-cellular encysted* tumour of Dupuytren. The patient dying some months subsequently a *post-mortem* examination showed that there were three distinct classes of tumours. 1. The molluscum of Bateman. 2. The fibro-cellular

* Synopsis of Cutaneous Diseases.

† Dictionnaire de Médecine, t. xx. p. 136.

‡ Traité sur les Maladies de la Peau, t. ii. p. 260.

§ Cazenave and Schedel, edited by Dr. H. D. Bulkley, New York, p. 253.

‖ Loc. cit.

¶ Cases and observations on the Molluscum Contagiosum of Bateman, with an account of the minute structure of the Tumours, by Robert Patterson, M. D., Leith, Edinburgh Med. and Surg. Journal, vol. lvi. p. 279, with plates.

** Edin. Med. and Surg. Journ., vol. lvi.

†† Quoted from Wilson.

‡‡ Amer. Journ. Med. Sciences, vol. vii. N.S. p. 296.

encysted of Dupuytren, which crackled like scirrhus when cut into. 3. An encephaloid mass found in the abdomen.

Dr. J. H. Worthington* reports a case in which the tumours were from the size of a pin's head to that of a split pea; soft, elastic to the touch and covered with cuticle, which does not differ from that which is natural. The tumours seemed to contain a pulpy or semifluid matter, were devoid of sensibility, perfectly indolent, and with no signs of inflammation about them. The skin over a few was discoloured and livid, owing to a defect in the capillary circulation. They had existed many years and undergone but little alteration.

Dr. Erasmus Wilson† disbelieves the contagiousness of the variety of Bateman, and regards all the tumours as dependent simply on obstruction of the sebaceous follicles, finding them to present all the characters of a small conglomerate gland, and the matter being identical with that from the sebaceous follicles.

Mr. Frederick Hale Thompson‡ reports a case of molluscum affecting the entire skin, and accompanied with the development of a medullary tumour on the thigh. The tumours covering the skin were unconnected with anything, but were of the same albuminous character as that on the thigh. He therefore suggests the name of Albuminous Molluscum for this variety. In the lecture accompanying this case is a full analysis of the paper of Dr. Jacobovics.

This gentleman has done much towards simplifying the subject by proposing a division of the disease into three classes, according to the character of the structure of the tumours, to wit:—1. Tubercula fungosa. 2. Tubercula atheromatosa. 3. Tubercula variegata.

According to Dr. Jacobovics, Molluscum is "characterized by congenital tubercles, hereditary or acquired, more or less numerous, of variable volume from that of a pea to that of a small melon, sometimes round, sometimes oval, as often flattened, irregular, ordinarily sessile, rarely pedunculated. They may preserve the colour of the skin, but often present a red-brown, yellowish-brown or bluish-black colour; their surface may be smooth or mammillated, dry or humid, sometimes scabby, *as often firm as soft, solid or atheromatous*, &c. &c.

Of the seat of the disease he says—

1st. The funguous tubercles are seated in the dermial cellular tissue.

2d. That he cannot determine the seat of the atheromatous from the incompleteness of the evidence which we possess.

3d. That the chorium and epidermis participate in the lesion which seems previously to have affected the sebaceous follicle.

In reviewing the testimony thus collected, much of the apparent contrariety of the description of this disease appears to have been owing to the different varieties having all been referred to the description of the original case of Tilesius. Adopting the classification of Jacobovics and the well sustained

* Amer. Journ. Med. Sciences, vol. x. N. S. p. 284.

† Diseases of the Skin, Phila. edit., p. 340.

‡ London Lancet, May, 1841, p. 256.

views of Wilson, Molluscum may be defined as a disease creating a change in the sebaceous follicles of the skin, in which such cell changes can be noted as are seen in other tumours seated in this tissue. The Contagious Molluscum of Bateman, will include the cases of Patterson, Henderson, Biett and Worthington, and is probably nothing more than a disordered secretion and change of structure in the sebaceous crypts as stated by Wilson; while the cases of Rayer, of Hale Thompson, Atlee, and that at the head of this paper may be regarded as fibro-scirrhous and albuminous degeneration of the same structure. Such an arrangement of the disease will be found to harmonize all the cases heretofore reported. It is deserving of special notice, viz., that if as stated the disease is seated in the sebaceous tumours, it must be, as it has been, amenable to constitutional treatment, and is certainly not malignant and probably not contagious, though when it is attended with complications of the general system it may present the ordinary variety of fungus hæmatodes or medullary sarcoma, and has hence been well named as Albuminous Molluscum. There is, therefore, but little reason to doubt that an obstruction or a fibro-scirrhous or medullary degeneration of the sebaceous follicles, combined with a marked cachexia, may be regarded as the pathology of this complaint. In the case now reported, the injury to the sebaceous follicles of the skin on the arm, merely induced the medullary deposit and the development of the constitutional disease just related, in the same manner that a local injury will lead to the development of cancer in any other organ of the body. The fact, as stated by Dr. Leidy, of the growth of a portion of the tumour taken thirty-six hours after death, and after being thirty hours in ice and inserted into the skin of a frog, presents an instance of vascular action not often met with. The well known accuracy of the observer and character of the Association to which the frog was shown, leave no doubt of the correctness of the point stated.

Philadelphia, *July*, 1851.

Art. VIII.—*On Nausea and Vomiting as a Symptom of Cardiac Polypus.* By Geo. W. Baskin, M. D., Member of the American Medical Association. (Read before the Mercer County Medical Society.)

Among the diseases which are difficult to diagnose with precision, are some of those which involve the heart and its appendages. True, there are certain phenomena present in those cases, which to the observant pathologist, unerringly point to the diseased organ; and, by the aid of percussion and auscultation, the practiced ear may and does determine, absolutely, the exact nature and location of most of the lesions affecting that viscus; but there are still some lesions of the heart, for the detection of which we have no certain diagnostic sign. In this last class we may confidently place *the formation and presence*

of a polypus or polypi within its cavity or cavities. Writing on this subject, one of the latest and best of authors says, "their symptoms are uncertain." Another, no less distinguished, says the diagnosis "cannot be easy" but may be suspected from an aggravation of general symptoms; while a third adds a long enumeration of symptoms, that may possibly indicate it (but which are common to all diseases of the heart). "We confess that we have no other means of resolving this difficulty, than by a reference to the progress of the disease." Concurrent with the opinions thus quoted is the testimony of all our standard medical writers, and we are thus, for the detection of this disease, left without any guide, other than what is furnished by the consideration of a certain set of symptoms, which pertain alike to all diseases of the heart. There is then still room for inquiry on this subject, and it is proposed to submit briefly two cases of *Polypi of the Heart*, with such remarks as have suggested themselves, in the hope that they may assist in resolving the difficulty. Let me premise that by the term "Polypus of the heart" is meant those fibrinous concretions which occur some time previous to death, become semi-organized, and by their presence in the heart, occasion a decided disturbance of its functions, ultimately endangering the life or producing the death of the patient. There is another species of polypus—so called—formed by the coagulation, or a separation of the constituent parts of the blood, just before, or at the moment of dissolution—but to them we do not have any reference.

Case I.—Mr. L. L., aged forty-five, was seen in the spring of 1846, labouring under a dropsical affection, the primary cause of which had not, at that time, been ascertained. His whole body was anasarcous and enormously swollen; large fluid accumulations distended the belly and filled the thorax, and there were also present unequivocal symptoms of effusion into the ventricles of the brain—with pressure more particularly about the root of the optic nerves. Under appropriate treatment—medicinal and operative—he was relieved of his dropsy, and he was then (it had been impossible to do it at an earlier period) carefully examined. His heart, which was enlarged and hypertrophied, with some trifling evidence of valvular obstruction, and his liver, which was much enlarged, were the only organs in which any lesion was discoverable, and their condition sufficiently accounted for all the symptoms that had been observed. His health in a short time had improved so much that further attendance on him became unnecessary, and the progress of the case for some months is unnoted.

In February, of the subsequent winter, I was again called to see him, and he was then suffering as much as at any time before, from a return of the more prominent symptoms. The reaccumulation of water in his belly and chest had been very gradual, but had become so great as seriously to interfere with his respiration, and the consequent necessity of a constantly upright position, together with sleeplessness and want of rest, had very much prostrated him. A marked feature, however, was an occasional, but increasingly frequent tendency to *nausea and vomiting*—a symptom that had been particularly observed by the patient himself, as different from any suffering he had previously had. Physical exploration revealed, more distinctly, the cardiac enlargement, and a decided obstruction to the closure of the aortic semilunar valves. He was again relieved for a short time, but about six weeks

prior to his death, which occurred early in the following April, there was a great aggravation of all the symptoms, especially those dependent upon deranged function. The occasional nausea and vomiting soon became constant, and for some days before dying it was impossible to administer any nourishment, or drink, or anything whatever. That symptom was beyond the control of medicine, even for mitigation. He died suddenly, as if by syncope while sitting in his chair, and in a few hours afterwards, assisted by my father, an examination was made of his body. Circumstances prevented a very extended investigation, and our attention was therefore at once directed to those parts, which, during life, had afforded the most evidence of disease—the thoracic and abdominal viscera. Simply premising that, in addition to a general anasarca, there were found large quantities of fluid in both the large cavities, we will speak of the condition of their contained organs. On opening the thorax the *lungs* were seen bearing some traces of an old pneumonia, and there were some slight adhesions between the right lung and the costal pleura, but there was no evidence of any recent disease. The *pericardium* contained about twice as much fluid as ordinary, and, considering how general the effusions had been in other parts, it was a matter of surprise that so small an amount had occurred in that sac.

The *heart*, being separated and removed from the body, was found to be greatly enlarged, and its cavities, laid open, disclosed an excessive hypertrophy of the left ventricle. The weight of the viscus, apart from the right auricle, which had been carelessly severed, was twenty-one ounces. Within the left ventricle was found a *polypus*—a semi-organized mass of a yellowish-white colour, opaque, of a fibrinous structure, and of an oblong, irregular form, measuring nearly three inches in length, one in width, and three lines in thickness. It was attached to the ventricular walls by small shreds or fibres, through the columnæ carneæ, and thence, gradually lessening in size, it extended into the orifice of the aorta, there to be similarly connected with the free margins of the semilunar valves. The valves themselves, and every other part of the organ, except those already specified, were perfectly normal.

Around the *pyloric orifice of the stomach* there was a very slight scirrhous deposit, but not, by any means, sufficient to produce any functional disturbance, and apart from that, not the least mark of disease was perceptible.

The *liver* was slightly enlarged—not near so much as had been supposed—and on its surface was deposited, in irregular patches, a substance not unlike cartilage in colour, structure, and hardness.

Our investigations were carried no farther.

Case II.—Miss P., aged about nineteen, and of medium size, had been in ill health for nearly a year. In the month of October last, she rather suddenly and rapidly grew worse. Two symptoms, more particularly noticed by the family from their unpleasant character and the distress they occasioned the patient, were an exceeding great dyspnœa, and nausea and vomiting. The former had been present, in some degree, during her entire sickness, but was much aggravated, and the latter had only manifested itself for the first time at the period when she grew worse. About a week after thus becoming worse, she was suddenly seized with convulsions, and, on that occasion, I first saw her, she having been under the care of another physician previously. The convulsions returned with much violence several times after I began attending upon her, and had they not been evidently dependent upon causes not likely to produce such, I would have pronounced them to be epileptic, so nearly did they assume the peculiarities of that disease. Prospectively, let me remark, that she was not again so affected until a few days previous to her death. As soon as possible, a careful examination of her case was insti-

tuted, and the suspicion, that an observance of her general symptoms awakened, of disease of the heart in some form was confirmed thereby. Auscultation over the cardiac region afforded a loud and distinct sawing sound, mingled with an indescribable murmur or noise, such as I had not before met with, or seen described. Greatly predominant, however, was the *sawing* sound, but owing to the complication just noticed, the exact location of the lesion producing it could not be determined. Percussion revealed an increased bulk of the heart, as also some effusion into the chest. The lower extremities were swollen and œdematous, as were the hands occasionally. Her pulse, varying in frequency, was hurried, small, and irregular. No disease of the lungs or abdominal viscera could be detected. These physical signs continued unchanged throughout the case, but in its progress, those dependent entirely upon functional derangement, were greatly aggravated. As in case No. 1, the nausea and vomiting became almost constant. It occurred under all circumstances and at all hours, frequently disturbing her repose, and at no time could it be traced to a certain cause. So persistent was this symptom as to induce frequent but fruitless searchings for some organic gastric lesion, and by it even the little relief that else might have been afforded her, she was deprived of. A remarkable hemorrhagic tendency was manifested by an almost constant dropping of blood from the nose, oozing from the cutaneous pores of the face, and, towards the close of life, by a sanguineous vaginal discharge, which, from the time of its occurrence and other circumstances, we were prevented from regarding as a true menstrual flux.

A fatal prognosis was, of course, promulged and a palliative treatment adopted.

A few days before she died, she was again seized with convulsions, followed by a deep coma in which she died, just six weeks from the time I first visited her.

Autopsy, thirty hours after death, in the presence of Drs. Grier, Hunt, and Harnet.

As in the preceding case, attention was specially directed to those organs in which, from symptoms present during life, we had reason to suspect we would find the seats of disease. Hence we first opened her chest, within which, on the left side was found some dropsical effusion, not, however, in sufficient quantity to produce any great degree of dyspnœa. The *lungs* were clear of any sign of disease, recent or remote.

The *heart* and its appendages were next removed from the body and carefully examined.

The pericardium was empty of its usual fluid. On the inner surface of the sac as well as on the outer surface of the heart were found rough granular patches of fibrinous deposits, varying in size, and evidently the result of an acute pericarditis. The *heart* was much enlarged and hypertrophied. With the means at hand we ascertained its weight to be at least seventeen ounces, but this is only an approximation to the true weight, and, it is possible that it may have been as much as a half ounce more. Certain it is, however, the organ had doubled its normal weight and dimensions. Neither in the appearance of its walls, nor within the cavities of the right side, was anything unusual noticed. The hypertrophy was found to be confined entirely to the walls of the left ventricle, whose cavity was much diminished in capacity. Within it was a mass of semi-organized fibrinous tissue, of almost cartilaginous hardness, opaque and of a yellowish-white colour. This concretion was nearly four inches in length, and at its largest part measuring about one inch in width and three or four lines in thickness. Thence tapering towards each end, the one extremity passed through the auricle and extended some way into

the pulmonary vein, while the other extremity was attached to the cardiac walls near the apex. From the whole length of this body, small threads or fibres passed off to fasten themselves firmly to different points of the auricular and ventricular surfaces. The body of the polypus was firmly adherent to, and lying between the free margins of the mitral valves, and by its presence utterly preventing an accurate approximation or wide separation of them. The result of this condition of the parts was, that not only regurgitation of blood from ventricle to auricle was not prevented, but that the passage of blood from auricle to ventricle was impossible to a great extent; thus producing a fulness of the pulmonary vein and a consequent engorgement of the lungs. Hence would arise much of the dyspnœa that marked the case, and this fulness and engorgement of the circulatory system, propagated to the brain from the great centre, would account for the occurrence of convulsions at the period when the polypus is supposed to have formed.

The stomach presented not the least trace of disease (much to our surprise and contrary to all expectation), nor did any other of the abdominal viscera present anything unusual in their appearance.

Remarks.—The object of this paper is to inquire whether the sudden occurrence of nausea and vomiting, and its continuance in the progress of and concurrently with other undoubted symptoms of heart disease, can be considered as pathognomonic of the formation and presence of fibrinous concretions or polypi within the heart?

It is not proposed to evolve a theory from the phenomena of the two cases cited, but it is conceived that they, taken in connection with collateral reasons, would justify the belief that there is some truth in the idea broached in the inquiry.

One fact, worthy of note, is that no writer in the enumeration of the symptoms of any other morbid condition of the heart, mentions or alludes to the presence of nausea and vomiting; since, if observant practitioners and pathologists, with extensive opportunities of observing the course and phenomena of diseases of which they write, do not any of them notice a particular symptom, the inference is fair that it has not occurred, and never does occur, and hence in other cases, when present, would be deserving of special attention.

But there are two authors of eminence—though only two, that are known to me—who mention the occurrence of nausea and vomiting in connection with the presence of fibrinous concretions in the heart. In his book on that organ, Aran, in speaking of this special condition, says—after giving other general symptoms—that there "is nausea and continued vomitings, and in some cases, stupor and feeble convulsive movements." On the same disease Hope remarks, that "if there is a sudden aggravation of the symptoms common to disease of the heart," occasionally accompanied with nausea and vomiting, the presence of a fibrinous concretion may be suspected." So far as the authority of books will avail—however slight it may be—it certainly favours the idea that nausea and vomiting, conjoined with other symptoms of heart disease, is rather peculiar to the polypus of that organ.

My own experience and observation would tend to confirm the opinion. Very many cases of diseased heart—in my own as also in the practice of

others—have fallen under my observation and examination. The diagnosis, in some of the cases, was confirmed by the opinion of the most eminent physicians in this country, and in an equal number by careful post-mortem examinations; but in only one besides the two given were the sickness and vomiting observed. In that one, disease of the aortic valves was thought clearly to have been made out, but no opportunity offered after death of confirming the truth of that opinion, nor of verifying the suspicion entertained, that there was present a fibrinous concretion. The absence of these symptoms, in my practice, holds good even for those cases of functional derangement of the heart, when we would most readily expect that, through the disordered nervous system, there would be some sympathetic derangement of the stomach and other important parts of the economy.

In the two cases given, it will be observed 1st, that, in both cases, there was a sudden aggravation of all the symptoms of heart disease some weeks prior to their death.

2d. That, simultaneously therewith, the patients were seized with nausea and vomiting—which continued unabated through life.

Knowing as we do, by actual observation, that there were polypi in these cases, we are ready to infer that their formation and presence was marked by the sudden and continued aggravation of all the general symptoms. And being also in the knowledge of the fact that there was not, in either case, any lesion of the stomach to produce the nausea and vomiting, may we not, with equal justice, infer that as these symptoms occurred simultaneously, and continued with the others, they resulted from the same cause? But we have also, in the one case, the occurrence of convulsions at a short period after the supposed formation of the polypi, their return before the death of the patient, and that death preceded for some days by coma—which symptoms Aran considers as rather indicative of the condition in question—to strengthen us in the inference, that the concretions were antecedent to the beginning of the nausea and vomiting.

We will not attempt to theorize upon the subject—to give the why or the wherefore of these things—but trust, that if there is any force in the proposition submitted, that it will be confirmed by the observations of others.

Mercer, *March* 1851.

Art. IX.—*Case of Stricture of the Œsophagus.* By Robert H. Cummins, M. D., Wheeling, Virginia.

The subject of the disease was the child of Mr. James Blake, an interesting little girl between three and four years of age. On the last day of August, 1850, the mother had reduced to a liquid state, for a domestic purpose, a portion of common potash, such as is made from wood ashes, and is used in

the manufacture of soap. The child, mistaking it for water, drank it; not much alarm was felt by the parents at the time, and they were satisfied with applying some domestic remedies. On the next day, however, I saw the child, and on examination, I found the whole mucous membrane of the mouth and pharynx in a state of disorganization. It presented a white appearance, and looked as if it could be easily detached from the subjacent tissues. The time had passed by when oleaginous or acid antidotes should be used, and my duty was simply to treat the effects of the caustic upon the tissues with which it came in contact. This was done by making oily applications to the mouth and throat, and the employment of mucilaginous drinks, and an occasional aperient. We likewise ordered a light and unirritating diet. I supposed that the alkali had not reached the stomach, from the absence of the usual symptoms which would indicate a lesion in this organ. After ten or twelve days the child recovered from the immediate effects of the poison, and in a short time appeared to have regained its usual condition of health.

After the lapse, however, of three or four weeks, the child was observed to have some difficulty in swallowing, and most of the solid food it took began to be eructated. The trouble grew worse from day to day, and the patient was perceptibly losing flesh and strength; the parents supposed that the vomiting resulted from disease in the stomach produced by the potash, and were not much concerned about it. It was not until the 15th of November, two and a half months after the accident, that they became alarmed and again consulted me. The child was then weak and considerably emaciated. It had a craving appetite, and frequently asked for food. Difficulty was now experienced in swallowing fluids, such as milk, soup, and water. Sometimes they would reach the stomach, but more frequently after a given quantity was swallowed it would be thrown up. Solid food would be taken eagerly, swallowed, and almost immediately eructated. At one period of the twenty-four hours, sometimes in the morning, sometimes at night, sometimes at noon, liquids could be swallowed, reach the stomach, and be retained. The child could always tell when this time had arrived, and then she usually took about one pint of milk. This was the principal nourishment that sustained her.

It was made known to the parents that a stricture of the œsophagus probably existed, and that all the difficulty their child experienced was produced by this cause, and not by disease of the stomach. An examination with a gum-elastic bougie revealed the truth of this opinion, and the obstruction was found to exist about six inches, measuring from the incisor teeth down the œsophagus.

The case was commenced to be treated in the usual manner by dilatation with gum-elastic bougies. Repeated attempts were made with these instruments to pass the stricture, but we could not succeed with even the smallest sizes. Imagining the flexibility of the instrument prevented its passage, we employed small sized gum-elastic catheters with a wire stilet. These were equally unavailing, and after a number of trials for two or three days, we became well convinced that nothing could be accomplished with any of these instruments.

During this period the child was rapidly sinking. She could only occasionally swallow fluids as thin as water, and these in quantities not sufficient to supply the necessary wants of the system. Injections of soup were freely employed, but notwithstanding our patient was dying from inanition.

Dr. Samuel Cooper, in his article in the *Surgical Dictionary*, describes a ball probe made of ivory, that he used successfully in the treatment of this disease. From reading his account, the idea was suggested to my mind, that a set of probes could be made from whalebone, that would probably answer our intentions. The flexibility of the gum instrument unfitted that for our

purpose, and it seemed to us that the whalebone would have the requisite amount of stiffness. We accordingly had prepared from this material a set of ball probes of different sizes—the smallest about the dimensions of a No. 2 catheter. These were made progressively larger until they attained the size of the No. 9 instrument.

After repeated trials we succeeded in passing our smallest sized probe, and this was accomplished with no little difficulty. It required a great deal of careful manipulation. All the while our little patient was struggling and making violent efforts to vomit. At length the instrument unexpectedly passed with a jumping motion. There was no immediate improvement in swallowing, but in the course of an hour or two, the patient could swallow liquids much better than she had been able to do for some time previous. Next day we could pass the same instrument without much trouble. We tried a larger one, but did not succeed. Each succeeding day for three days we passed our No. 2 probe. After this we were able to pass our No. 3 instrument, and after each passage there was an improvement in the child's swallowing. She could by the seventh day swallow liquids at almost any period of the twenty-four hours.

There is a spasmodic element in this disease that interfered at particular times with our patient's deglutition, and no doubt always forms a great obstacle to the passage of instruments.

It would be unprofitable for us to narrate in detail all the circumstances attending the progress of this case. It will be sufficient for us to say, that we used successively our different sized instruments, until, about the 10th of December, we could pass our largest one, and that there was a progressive amendment in our patient's condition. She could swallow liquids at any time, and often took semifluid and even some kinds of solid food, such as soft baked gingerbread moistened with milk or water. She was rapidly regaining flesh and strength, and from a state of emaciation and extreme debility, she had by the early part of January, 1851, recovered considerable flesh and was able to run about the house. Her mind, heretofore entirely indifferent to everything, now showed a corresponding change, and she occupied herself with the usual amusements of childhood. At this period of our treatment we felt pretty sanguine of effecting a cure, and with the intention of still further dilating the stricture, we employed some large sized gum-elastic bougies. These, however, we never succeeded in passing beyond the stricture. They would reach the seat of the disease, and pass the distance of half an inch into it, but without using an unjustifiable amount of force we could urge them no farther.

This favourable state of things continued throughout the month of January. During the first days of February, deglutition was performed less easily, and sometimes our patient could not swallow at all. We were compelled to discard the use of all substances except those of a fluid consistence. The larger sized instruments I could not pass, and I was forced to use them successively smaller. Sometimes I was unable to pass even the smallest size, and when this was the case our patient could seldom swallow fluids of the thinnest consistence. The difficulty increased, and by the fourth of the month the passage seemed completely closed. I could neither pass an instrument nor could the child swallow a drop of water. Small portions would be taken, but almost immediately regurgitated. Soup injections were resorted to, but notwithstanding our patient was rapidly sinking. For five days we tried repeatedly, but in vain, to open the closed passage. Two or three times during this period, we supposed that some of the fluids attempted to be swallowed reached the stomach, but of this we were by no means certain. In our patient's condi-

tion, death was inevitable unless a passage could be obtained to the stomach, and every impulse of our heart constrained us to effect this by some means.

Three methods suggested themselves to our minds—first, to destroy the opposing stricture by caustic—secondly, to incise the stricture by means of a concealed cutting instrument—or thirdly, to force a passage with a stiff ball probe. After some consideration, however, we gave preference to the latter, as least likely to do mischief.

The whole case was fairly represented to the parents. On the one hand the danger of perforating the œsophagus was shown, and on the other death from starvation. They were not long in deciding. They not only sanctioned proceeding, but urged us to make the attempt.

We accordingly had a ball probe of small size and considerable stiffness prepared. This we introduced in the ordinary way, and employed not a greater amount of force than we were accustomed to use to dilate the stricture. After a few moments of steady pressure the instrument passed, and we supposed at the time had made its way through the stricture to the stomach, but it had ruptured the œsophagus. The stem of our other instruments was made very slim. They consequently had considerable flexibility, and this prevented our doing mischief with them. The child immediately swallowed wine and water, and continued to do so up to the time of its death, which happened on the 10th of February, about twenty-two hours subsequent to the rupture of the tube. No symptoms occurred previous to the death of the child that led us to suspect that the œsophagus had been perforated, and it was not known till revealed by the autopsic examination.

Permission was obtained to make a *post-mortem* examination of the diseased part only, and we were required to mutilate the body as little as possible. Externally the child presented an appearance of great emaciation. An entire consumption of the adipose tissue seemed to have taken place, and the outward indications all declared that death had occurred from inanition.

An incision was made over the sternum, and extended upward about one-third way on the neck, and downward into the epigastric region over the stomach. Our examination was hence confined to the thoracic contents, the stomach and œsophagus. In the thorax, outside of the œsophagus, we found no morbid appearances. The lungs themselves presented no trace of disease, but the right one was found in a collapsed state and completely surrounded by fluid. This consisted of wine, water, and soup, which the patient had drank for the last twenty hours, and probably amounted to one pint and a half. The fluid occupied the posterior mediastinum, and the space between the pleura costalis and pulmonalis of the right side. The heart was of normal size and appeared perfectly healthy. It contained blood in an uncoagulated state.

We next divided the œsophagus as far upward as we could reach without extending the cut upon the neck, dissected it out from its connections in the thorax, and, together with the stomach, removed it from the body. This tube was divided about two inches from its upper extremity, and we were thus prevented from examining the pharynx and that part of the œsophagus superior to the cut. After removing the œsophagus from the body, we laid it open in its entire length, and the ravages of the potash were at once presented to our sight. On its posterior aspect there was almost a continuous line, varying in breadth from the eighth of an inch to three-quarters of an inch, and reaching from the superior extremity to the stomach, that showed the track of the caustic. At some places the diseased action was extended more widely, and at one point, about two inches from the divided end, it had nearly embraced the whole circumference of the œsophagus. It was here that the

caustic produced its most powerful effect, and made the greatest encroachment upon the calibre of the tube. At this point it was narrowed to the dimensions of a crow-quill, and there was not more than a quarter of an inch of the circumference of the passage that was free from disease. This was the situation of the stricture. It extended in length from one-half to three-quarters of an inch. The disease was on the posterior and left side of the tube, and the encroachment on its calibre was from this direction. Anteriorly and to the right a small space remained unaffected by disease. Immediately above the seat of the stricture, and on the left, a small pouch was formed by adhesion of the diseased tissues. This no doubt oftentimes formed a lodgment for our probes and prevented their passage to the stomach. At the seat of the stricture it was the unaffected portion of the tube that we found perforated. The opening would have admitted a No. 5 catheter. Below the stricture we found the tube on its posterior aspect diseased continuously nearly to the stomach.

The potash, wherever it came in contact with the mucous membrane of the stomach, appeared to have destroyed it, and the sub-mucous tissue at the affected parts was much thickened and fibrous in its character. The mucous membrane did not appear to be regenerated. The surface of the disease at least did not present the ordinary characters of a structure covered by mucous membrane, for it was roughened and fibrous. Wherever the caustic touched the mucous membrane was disorganized, and an inflammation was set up that resulted in a deposit of lymph which assumed a fibrous organization.

We next laid open the stomach. This we found of its ordinary size, and containing about half a pint of fluid of a dirty colour, and having flakes of mucus floating through it. The mucous membrane was somewhat injected with blood, and presented here and there traces of inflammation. We discovered no appearances in the stomach that led us to believe that the poison had reached this organ. There was no destruction of mucous membrane—no fibrous deposit. There were no ulcers either in the stomach or œsophagus.

Remarks.—Some reflections naturally occur to the mind in connection with this case, and, among the first, are those associated with its cause. Stricture of the œsophagus has been known to arise sometimes spontaneously and without any assignable cause, but, upon inquiry, we find that by far the greatest number of cases have been produced by the action of some caustic substance. Potash and the mineral acids are the caustics that have most frequently given rise to the disease. Of these, caustic potash has, perhaps, produced stricture most frequently. The first application of this substance to the parts in question causes the destruction of the mucous membrane. The second step in the progress of the disease is the establishment of inflammation in the submucous tissues. As a consequence of this, we have an effusion of lymph, which becomes organized and encroaches upon the calibre of the tube. The inflammation once established perpetuates itself, for successive deposits take place and become organized until the œsophagus is finally obliterated.

Nitrate of silver, though frequently applied with a curative intention to the pharynx and upper part of the œsophageal tube, so far as we are informed has never been known to produce the disease. Nor has it produced

the disease, to our knowledge, in the urethra, or other similarly constituted passages. The kind of action set up by its application, we infer must be different from that produced by the other caustics enumerated.

The representations of this disease by diagrams in the books simplify it very much, and influenced by such teaching, the surgeon may often wonder why his instrument will not pass; but we are afraid these representations have no counterpart in nature. The post-mortem examination in our case, instead of revealing a regular narrowing, through which an instrument might easily be passed, showed diseased structure from the pharynx to the stomach, and, at one part, extending for the distance of half or three-quarters of an inch, an irregular narrowing of the tube by an encroachment from one side only. The entrance to this was difficult to find with an instrument, and when found, it was difficult to pass. The disease itself is, by no means, a common one, and we are led to believe that post-mortem examinations of it have been but seldom witnessed.

Our case was progressing favourably to a period within a few days before its fatal termination. We suppose that a new accession of inflammation, at this time, gave rise to an increased narrowing of the passage. This continued until we were finally unable to pass our smallest instrument.

Spasm, no doubt, of the affected parts, interfered to some extent with the transit of our instruments, but the examination proved that, at this time, it was mainly prevented by organic changes. It was before remarked, that spasmodic action constituted one element in this disease, and this, we think, will be readily admitted by any one who will reflect on the subject. In the early stages of the disease, our patient was able to swallow, at one period of the twenty-four hours, and not at another, and this was the case when we could not suppose that the passage was blocked up, either with solid food, or the secretions of the parts. We can only explain this symptom by supposing that spasm, at this time, was superadded to the other difficulty. The natural sensibility of the part is augmented, and the spasm is a reflex spinal act.

It was at the period above referred to, a few days antecedent to death, when our patient was entirely unable to swallow even liquids, and when she was in a dying condition, from absolute starvation, that we felt impelled to use some means for relief. Injections had been freely employed, but, notwithstanding, our patient was sinking. Four days had been spent in unavailing efforts to effect a passage to the stomach. In every aspect of the case, death seemed to be inevitable unless a passage could be procured. The circumstances not only justified us in transcending prescribed limits, but imperatively called upon us to act. We used force, and although we were not successful in our final attempt, yet we have the satisfaction of knowing that no effort was left undone, and that no justifiable expedient was left untried.

The examination after death furnished additional consolation, for it revealed a state of disease that was entirely incurable by art.

REVIEWS.

ART. X.—*A Practical Treatise on the Diseases and Injuries of the Urinary Bladder, the Prostate Gland, and the Urethra.* By S. D. GROSS, M. D., Professor of Surgery in the University of Louisville; Member of the American Medical Association; Author of "Elements of Pathological Anatomy," etc. etc.—With one hundred and six Illustrations. Philadelphia, Blanchard and Lea, 1851. 8vo. pp. 726.

THE object of this work, says its author, "is to present, in a systematic and connected form, a full and comprehensive account of the diseases and injuries" of the organs above specified. It is remarkable that no such work has hitherto been written in the English language—the more so since these affections are so often brought under the notice of the surgeon. The materials for such a treatise are abundant; they are to be found in the excellent, though incomplete, monographs of Brodie, Coulson, Parrish, in isolated papers by many other eminent surgeons of Great Britain and our own country, and in the numerous medical journals of both lands. Great attention has also been devoted to the affections incident to these important organs, by the surgeons of continental Europe. The task of combining and arranging into an harmonious and complete whole the mass of knowledge thus laboriously acquired and lavishly scattered abroad, could not have been committed to one more adequate to its successful accomplishment, than to the distinguished gentleman who has voluntarily assumed it. In addition to the ability and industry which would enable him to sift well the harvest of other reapers, to garner up the fine wheat and to reject the refuse, he has for years been himself an active labourer in a fertile field, and has largely added to the common heap. The result of his labours is this volume, replete with truths and principles of the utmost value in the investigation of these diseases.

The book is divided into three parts. The first part is devoted to the Diseases and Injuries of the *Bladder;* the second to those of the *Prostate Gland*, and the third to those of the *Urethra*. And in the *Introduction*, the anatomy of these organs is described in full; it contains also a chapter on the urine. Thus the author's treatise embraces a very wide range of subjects, not only those which are ordinarily comprised in systematic publications on surgery, but many others which are more rarely described.

We shall endeavour, by passing in review some of the most important of these topics, as herein discussed, to present our readers with a fair exposition of the merits and character of the work.

The first proper step towards a knowledge of the diseases and injuries of these organs, is the acquisition of their special and relational anatomy. To this important subject, Professor Gross has devoted much attention.

Medical students are too prone in their dissections to pass lightly over, or to neglect entirely, the disposition of the *fasciæ* of the various regions. Nowhere is an accurate acquaintance with the extent and arrangement of the fascial aponeurosis of more importance than in the perineum, both with reference to the lesions which occur accidentally, and to the operations which are practiced upon it. Our author, accordingly, dwells emphatically upon this

anatomical element of the perineum, and upon its influence, so long as it remains entire, in preventing the urine, when poured out from a ruptured urethra, from coming in contact with the tissues around the anus and the thighs. He describes it as "a thin, delicate, fibrous lamella, of a triangular shape, which is spread over the muscles of the perineum, and is firmly attached on each side to the outer border of the branches of the pubic and ischiatic bones. In front, it is prolonged upwards into the scrotum, where it appears to become continuous with the dartos; behind, it winds around the posterior margin of the transverse muscle, and is finally inserted into the anterior layer of the triangular ligament of the urethra. This membrane consists of a single lamella, the fibres of which are for the most part disposed transversely; it is thin, transparent, and pierced at various points by the branches of the pudic vessels"—p. 35. And after giving this commonly received account, he adduces the observations of Dr. Buck, of New York, a report of which was submitted to the American Medical Association in 1848, and published in the first volume of the *Transactions* of that body. These observations are to the effect, that the superficial fascia of the perineum is continuous above with the suspensory ligament of the penis, furnishes a sheath for the corpus spongiosum urethræ, and one for each of the corpora cavernosa.

We would not be hypercritical, but we would urge that the author's description would have been more satisfactory, if, instead of speaking of this tissue as though it began and ended with the perineum, he had described it as really continuous with the superficial fascia of the abdomen. The fascia superficialis abdominis may be followed over the lower anterior face of the abdomen to the groins, where it is closely connected with Poupart's ligament, thus separating the superficial femoral from the superficial abdominal region, and preventing urinary infiltration which may have gained the latter from invading the former surface: at the median line of the abdomen, this same fascia approaching from each side forms the suspensory ligament of the penis; it likewise contributes an investing sac to each testicle and to the cord after it has escaped through the anterior ring; it constitutes also a subcutaneous investment for the scrotum, then passes downwards over the perineum, affording a sheath for each of its superficial muscles, excepting the external sphincter ani, and, winding around the transverse perineal muscles, becomes intimately blended with the posterior edge of the deep perineal fascia, or triangular ligament of the urethra; laterally, it is also firmly attached to the rami of the pubis and ischium. For a lucid account of this fascia, and for beautiful representations of it, we would refer the reader to *Maclise's Surgical Anatomy*, part 4th.

The vascular peculiarities of the perineum are well detailed, and many other circumstances which closely concern the operations upon this region.

We pass over the very full chapters on the anatomy of the bladder, remarking merely, that the author seems to have bestowed much, and careful study upon these organs, with especial reference to their interest in the operations to which they are exposed. The illustrations attached to this part of the work will be found to be very good, many of them having been originally executed for this volume.

The description of the urethra is equally full. There has been much difference of opinion among anatomists concerning the real nature of the external tunic of the urethra. Dr. Gross describes it as "a thin lamella of cellular tissue, which serves to connect the tube to the subjacent textures. It is of an erectile spongy character, and is pervaded by a great number of

minute vessels, which impart to it a singularly striated aspect, not unlike fleshy fibres."

"This reddish vascular appearance, added to the contractile power of the urethra, induced Mr. John Hunter, and afterwards Sir Everard Home, to believe that this tunic was essentially muscular in its nature. The opinion of the former rests wholly on assumptions deduced from pathological facts and reasonings; that of the latter is founded upon minute microscopical inspections. From these it would appear, that the external membrane of the urethra is made up of short longitudinal fibres variously interwoven with each other, and united together by a soft elastic substance. How far these results are worthy of confidence, is a point not easily determined. The question is still open, notwithstanding the numerous attempts that have been made to settle it. That the substance under consideration is really muscular is altogether improbable, though there are few practical surgeons who will deny its contractile power in certain states of the urethra"—p. 83.

This question may now, we think, be considered as settled by the observations of Kölliker, a very distinguished and accurate investigator, and one every way worthy of confidence. His researches into the structure of the spleen and mucous membranes, his recent treatise upon the special anatomy of the tissues, and his miscellaneous contributions to the medical periodicals of his own country, have made his name a prominent one. According to Kölliker, the outer coat of the urethra is composed of contractile fibre mixed with common elastic tissue, and is similar to the contractile tissue, which he has demonstrated as entering into the constitution of the spleen and mucous canals. The relative proportion of the contractile, to the common elastic element, varies in different portions of the urethra, being least abundant where the ordinary muscular tissue exists in quantity. He terms it the *simple muscular tissue.* The arrangement of this anatomical element varies according to situation. It is most complicated in the prostatic portion of the canal, and in the prostate gland. This tissue is so abundant in the latter body, that the true glandular structure forms only one-third, or one-fourth, of the whole mass. If the mucous membrane be raised from the prostatic portion of the urethra, a layer of *longitudinal* fibrous tissue of a yellowish colour comes into view—

"Connected, internally to the sphincter vesicæ, by a thin and indistinct layer of fibres, with some of the longitudinal muscular fibres of the bladder; but by far the greater part of it is unconnected with this latter; it consists half of fibro-cellular tissue with many nucleus-fibres, and half of evident, smooth muscular fibres with characteristic nuclei. After this, and external to it, follows, secondly, a strong layer of yellowish *circular* fibres of muscular and elastic tissue. This layer is connected above with the sphincter vesicæ, where also it is most developed; whilst below, it becomes gradually thinner, and below the caput gallinaginis is either lost, or appears only in very small quantities. On removing the several muscular layers, we come at last to the proper glandular tissue of the prostate, of which individual lobes penetrate among the circular fibres just mentioned, their excretory ducts passing through the longitudinal fibres."

In the membranous part of the urethra this smooth muscular tissue is less developed; and here it is less requisite, because this part of the canal is surrounded by a distinct set of muscles. Under the mucous membrane, the cellular tissue of which abounds in elastic fibres, is a layer of longitudinal fibres connected with those of the prostatic portion.

"These fibres consist for the most part of fibro-cellular tissue with nucleus-fibres, and include, in small numbers, undulating, delicate, and curved contract-

ing fibre-cells (of the nature of smooth muscular fibres), which may be in part isolated, and are from 0.07 to 0.1 of a line long, from 1.002 to 0.003 of a line wide. They contain small nuclei from 0.012 to 0.014 long, and are more easily found in recent specimens than in those treated with acetic acid. External to these longitudinal fibres, there is a strong layer of transverse fibres, which belong mostly to the *musculus urethralis*. Some of these, however, especially those belonging to the inner layer, display some strong bundles of smooth muscular fibres, together with fibro-cellular tissue and nucleus-fibres, and a partial mixture of fasciculi of the transversely striated fibres of the *musculus urethralis*."

The smooth muscular fibres are still less developed, generally, in the spongy portion of the urethra.

"At a certain depth, however, some longitudinal fibres are distinguishable, with a more or less considerable admixture of smooth muscle, which fibres cannot be regarded as beams of the corpus spongiosum, since they have no venous spaces between them, but rather form a continuous membrane which limits the corpus spongiosum towards the mucous membrane." (Quoted from the *Cyclop. of Anat. and Physiol.*, Art. *Urethra*, p. 1251.)

We abstain from any comments upon the chapters devoted to the consideration of the *urine*, and of *malformations*, *imperfections*, and *injuries* of the Bladder.

The third chapter discusses the subject of *inflammation* of the bladder. The *symptoms* of inflammation of this viscus are detailed as fully as they are ordinarily described in general systematic treatises—more so than in the usual text-books. But in such a work as the one which we are now reviewing, and from the pen of Professor Gross, we had anticipated much more than this. We had hoped that he would devote some considerable space to the description of anomalous cases, and such as are complicated with disease in other organs; in short, that, from his long clinical experience, the author would contribute an amount of information which the active practitioner might apply to the elucidation of the difficult and complex cases of cystitis which are so often presented to his notice. The *treatment* is much more fully dwelt upon. The professor very properly insists upon the importance of prompt and free venesection. He says—

"There are few cases of acute cystitis which resist this means beyond the second or third day, and such as do are always more easily managed afterwards by mild treatment. I have repeatedly cut short, by the lancet alone, attacks of this disease so severe as to leave the patient no rest, and so threatening as to induce the worst apprehensions for his ultimate recovery. The same treatment has often promptly succeeded in my hands after other and less efficient means had been employed for days with little or no benefit"—p. 125.

This powerful remedial measure is not, however, to be indiscriminately employed, but with regard to the age and general condition of the patient and the duration of the attack. Neither does the author restrict its employment in the more severe forms of the malady which are accompanied with great constitutional reaction, but finds it equally applicable and advantageous in those which are attended with trifling general disturbance. In addition to this agent, the necessity of free evacuation of the bowels by cathartics and enemata is urged, avoiding such as are disposed to produce much irritation of the rectum. Diaphoretic medicines are also advised, particularly tartar emetic, Dover's powder, and an effervescing draught, according to the grade of the symptoms and the condition of the stomach. Diuretics are to be given cautiously; such as are very stimulating are to be avoided. The local means most highly re-

commended are topical bleeding, anodyne enemata, or suppositories, warm fomentations and the hip-bath. Judicious modifications of this general plan of treatment are suggested in cases of cystitis produced by the presence of foreign substances in the bladder, by cantharides, gout, &c. &c. With regard to "*direct medication*," the author is of opinion that "it is more likely to do harm than good. It is only in the latter stage of the disease, when the acute symptoms have disappeared, that such a course would be at all admissible, and then it could hardly be required." With these sentiments we are sure that all judicious men will concur.

The reader will find in the other sections of this chapter interesting descriptions of forms of disease which, although they are happily rare, do sometimes occur, involving great suffering on the part of the patient, and anxiety on the part of the physician. These are "fibrinous exudation of the bladder, suppuration and abscess, gangrene and ulceration." The author's account of these morbid processes and conditions is rendered more valuable in consequence of the recital of numerous illustrative clinical cases.

One of the most complete chapters in the volume is that on catarrh of the bladder. Dr. Gross denies the necessity of distinguishing two varieties of cystorrhœa, the acute and the chronic, inasmuch as the acute form "does not differ in any respect from ordinary acute cystitis, described in a preceding chapter." He therefore describes the affection as being chronic. The same view is taken of this subject by Dr. Wood in his excellent work on the Practice of Medicine, who treats of this disease as a *chronic cystitis*. Practically, this view may be sufficiently correct, the symptoms of cystorrhœa, whether in the acute or the chronic stage, demanding pretty much the same medication as those of ordinary cystitis of the corresponding grade. But pathologically considered, it seems to us that there is a difference between catarrhal inflammation and common inflammation of a mucous surface. The distinction may be best seen in the two affections of the conjunctiva; where, we think, the appearance of the vascularity, the alteration in the physical condition of the membrane, the character of its secretion as to aspect and the possession of contagious or non-contagious properties, are materially dissimilar from their commencement respectively. And if this be true of the conjunctiva, why not also of the mucous membrane of the bladder? In what especial particulars this difference consists we are not prepared to say. However this may be, the description of chronic vesical catarrh, as given by Dr. Gross, is very complete.

He says, "Cystorrhœa is always dependent, directly or indirectly, upon some obstacle to the evacuation of the urine, or upon a diseased condition of the bladder itself. Hence the most common exciting causes are stricture of the urethra, the presence of a calculus, hypertrophy and enlargement of the prostate gland. Paralysis of the bladder, whether produced by over-distension of the organ by urine, or by injury or disease of the spine, frequently gives rise to this state. The muscular fibres having lost their expulsive power, the water is never completely evacuated at any one time, even when the catheter is used, but a portion remains in the bottom of the bladder, where it is speedily decomposed, and acts as an irritant to the lining membrane, followed by an inordinate secretion of mucus. Cystorrhœa is a constant attendant upon sacculation, ulceration, hypertrophy, and carcinoma of the bladder. When the affection is once established, it may easily be aggravated or re-induced by exposure to cold, exercise on horseback, sounding, venereal excesses, drastic purgatives, indulgence in ardent spirits, stimulating food, irritating injections, diuretic and other remedies, as turpentine and cantharides, over-distension of the bladder, neuralgia, retrocession of gout, repulsion of cutaneous eruptions, local injury and disease of the adjoining parts, as the anus, rectum, vagina, and uterus."

The progress of the disease is then described, and its symptoms are detailed in a very satisfactory manner. The following quotation possesses some interest:—

"Patients affected with cystorrhœa are sometimes impotent, even if they are comparatively young. I have met with several instances of this kind. In one remarkable case, the gentleman, forty-four years of age, had experienced no sexual desire for upwards of six years, though he was naturally of an amorous disposition. His penis had become soft and flabby, and had not been in a state of complete erection for a long time. He had occasional emissions, but they were always unaccompanied by the proper feeling. Owing to the frequent micturition which forms so striking a feature of this disease, and the severe straining which usually attends it, catarrh of the bladder is often complicated with hemorrhoids, prolapsion of the bowel, swelling of the testes, and even with hernia."

The *diagnosis*, remarks the author, involves the distinguishing of this complaint from seminal emission, gonorrhœa, and suppuration of the bladder; and this cannot be a very difficult task.

Passing over the observations upon the prognosis and the anatomical appearances, we are brought to those concerning the *treatment* of cystorrhœa. The cause of the disease having been ascertained, and if possible removed, the medication which the author advises consists in the local or general abstraction of blood, mild purgation, and the employment of certain internal remedies which act upon the kidneys and modify the character of their secretion. Of the latter substances, the author most approves of the balsam of copaiva in the dose of from ten to twenty drops repeated three or four times daily. Besides this, the turpentines are advantageous, as also the infusions of buchu, uva ursi, epigœa repens, the muriated tincture of iron, colchicum, benzoic acid, &c. &c. Among the direct applications are enumerated tepid water, introduced by a double-chambered catheter which will permit the fluid to enter the bladder through one side and to escape by the other, and various astringent and sedative solutions. With regard to cauterization by means of the solid nitrate of silver, the author has made trial of it in a few instances, but does not think it effected any decided impression upon the disease. He thinks it chiefly applicable to those cases which are dependent on inflammation of the neck of the bladder, accompanied with an unusual degree of sensibility.

"In obstinate and intractable cases of cystorrhœa, where all other remedies have failed to afford relief, it has been proposed to penetrate the neck of the bladder by means of an incision similar to that made in the lateral operation of lithotomy. The object is to afford a free outlet to the mucous secretion as fast as it takes place, and to put the organ thereby in a state of comparative repose. In a word, the principle is the same as in the operation for anal fissure and fistula. The wound is not permitted to close too soon, and yet care is taken lest it become fistulous."

A case is then detailed in which this operation, originally suggested by Mr. Guthrie, but first performed by Dr. Parker, of New York, was executed by the latter. After much previous and protracted suffering on the part of the patient, and a variety of medical treatment,

"Dr. Parker was induced to perform the lateral operation on the 23d of November. The incision was quite free, and was followed by the loss of about sixteen ounces of blood. For the first twelve hours the patient experienced severe pain in the bladder, urethra, and left thigh, but this gradually yielded to the liberal use of anodynes. A very decided improvement of the former symptoms soon became apparent; the pulse diminished in frequency; the urine passed off freely by the wound; the patient slept better, and for a time he

seemed in a fair way of recovery. About the end of the third week, however, he became worse; his strength now rapidly declined; the vesical distress increased, and he began to exhibit all the evidences of a poisoned state of the system from the retention or absorption of urea. He continued in this manner until the 24th December, when he expired, death having been preceded by delirium and coma."

Besides the diseased condition of the bladder, the kidneys were found affected, one enlarged and congested, the other small and filled with tubercular matter; both lungs also contained tubercles; in the left was a cavity. This case was, consequently, an unfavourable one for the operation; but Dr. Gross says—

"I shall certainly not hesitate to resort to it the first favourable opportunity that may present itself to my notice. The operation, it seems to me, is particularly applicable to that form of cystorrhœa in which there is marked hypertrophy of the prostate gland and the muscular coat of the bladder."

We confess that we are not a little surprised to meet with such decided commendation of this expedient from Professor Gross. We find him teaching, at page 425, when speaking of *lithotomy*, that

"No surgeon, having a proper regard for his own character and the dignity of his profession, would be likely to operate in case the patient is affected with organic disease of the lungs, or of any other important viscera. Serious lesion of the *kidneys*, *ureters*, *bladder*, and *prostate gland* also forbids interference. In short, wherever the health is much impaired by previous suffering, not solely dependent upon the presence of the urinary concretion, the judicious surgeon will hesitate not a little before he will resort to the knife."

Again, in his enumeration of the morbid appearances found after death from cystorrhœa, he says, p. 169:—

"After some time" (and we presume that this limitation must certainly apply to the 'obstinate and intractable cases of cystorrhœa, where all other remedies have failed to afford relief,' p. 177, for which the author considers the operation in question recommendable, and '*the credit*' of doing which he awards to Dr. Parker), "the muscular fibres become hypertrophied. The cellulo-fibrous lamella is also much thickened, as well as increased in density, and the mucous membrane, particularly that portion which corresponds with the bas-fond of the organ, is often thrown into large heavy ridges. In some instances the lining membrane is ulcerated, covered with patches of lymph, or protruded across the muscular fibres in the form of one or more pouches. The walls of the bladder are frequently five or six times the natural thickness. The kidneys, ureters, and prostate gland are generally implicated in the mischief, sometimes to a fatal extent."

Now, as it is not the mere presence of the stone in the bladder, but rather the diseased condition of this and other associated organs, which constitutes the objection to lithotomy, why should it be considered any the less improper to open the bladder in a case of cystorrhœa, in which the organ is not fretted and inflamed by the continued irritation of the calculus, and by the removal of which, in the other case, one important element in the morbid condition of the parts would be withdrawn?

We cannot reconcile these conflicting statements, neither can we at all unite with Professor Gross in commending this operation under any circumstances. Cases of moderate severity and duration will not require, and those of long continuance and unusual aggravation will, in the vast majority of cases, and of necessity, die from this "*ultima ratio.*"

The next subjects treated of are the "*bar-like ridge of the neck of the bladder,*" a peculiar form of local hypertrophy of this organ, first particu-

larly described by Mr. Guthrie; and *sacculation of the bladder*, like the other a consequence of any long-continued obstruction to the discharge of the urine.

The *fifth* chapter discusses the nervous affections of the bladder, comprising *irritability*, *neuralgia*, and *paralysis* of the viscus. These are all exceedingly interesting affections, requiring for their successful and rational treatment considerable diagnostic skill and therapeutic knowledge. The author seems to have had frequent opportunities of studying these diseases, and his views concerning them will well reward a careful study.

In the succeeding chapter, he describes the *heterologous formations of the bladder*, scirrhus, encephaloid, colloid and melanosis, and tubercular disease. After this follow chapters on polypous, fungous, erectile, and other morbid growths of the bladder; on worms; serous cysts and hydatids; fœtal remains; hair, and air in this organ. Another treats of hemorrhage of the bladder. The chapter on *retention of urine* is very well written. The remarks upon the diagnosis of this condition are worth a careful perusal.

"One would suppose that retention of urine could seldom, if ever, be mistaken, when we consider its mode of origin, progress, and symptoms, which are usually sufficiently characteristic. Yet, strange as it may appear, some very singular as well as very unfortunate blunders have been committed, in this respect, and that, too, by men who, from their skill and experience, ought to have known better. The affection with which it is most liable to be confounded is ascites, or dropsy of the peritoneal cavity."

And in the sequel some apposite cases are quoted. Retention of urine has been confounded, too, with a "supra-pubic abscess." And, inasmuch as pregnancy has often been mistaken for ascites, and by very distinguished physicians, and the error has even proceeded so far as actually to lead the surgeon to tap the swollen part, we should suppose that retention of urine may be just as well confounded with this condition of the uterus, or *vice versâ*. The points to be attended to in the diagnosis are sufficiently detailed by Dr. Gross to enable any one of ordinary discrimination, and particularly if he be upon his guard, to avoid so egregious and discreditable an error. The *treatment* of course consists in emptying the distended viscus by the aid, if possible, of the catheter. The author advises, very properly, that a portion only of the fluid be removed at once, if the quantity be at all considerable, in order that the bladder may have time to recover its tone, and that the pressure to which the abdominal and thoracic organs have been so long subjected shall not be too suddenly removed. He enumerates the most common causes upon which retention of urine depends, and by the cure or withdrawal of which a permanent recovery may be gained. The first class of causes affects the urethra, the bladder, or the head of the penis. To the first mentioned seat of the obstruction belong organic stricture, a calculus, clotted blood, coagulating lymph, inspissated mucus, or an enlarged mucous follicle, and, in the female, the mal-direction of the urethra; moreover, the obstacle may be exterior to the canal, as a simple or malignant tumour, an abscess, a collection of blood, a boil, or an ordinary swelling from contusion, any one of which may produce temporary obliteration of the channel, by the mere pressure which it exerts at some point. To the second appertains hypertrophy of the prostate, or the presence of some earthy or animal concretion, or any tumour within the pelvis of sufficient size to press upon the neck of the bladder. In the last category are included an imperforate prepuce, priapism, &c. These and other causes of retention, and the treatment, are ably expounded.

The other two sections of the same chapter are very appropriately taken up with observations upon the two expedients most commonly resorted to for the purpose of overcoming the difficulty with which we have just now been occupied; these are catheterism and puncture of the bladder. The first of these occupies a brief space in the author's volume. We cordially concur with him in his view of the importance of this apparently simple operation, and the very great skill which is requisite to perform it well. We should have been better pleased to be favoured with a much more extended consideration of the subject from one whose ideas concerning it are so correct, so far as he has expressed them, and whose practical skill in manipulating with the catheter, is, we have no doubt, so great. The directions which he gives, however, seem to us to apply only to the ordinary cases in which a surgeon is called upon to empty the bladder, and to leave untouched the only really troublesome instances which occur to him; the only ones with reference to which he would think it worth while to consult those whose ingenuity and tact are superior to his own. We know that, no matter how many additional pages Professor Gross had devoted to this point, no matter how lucid and comprehensive his lessons, the reader could not from all have acquired the delicacy and the dexterity which alone can enable him to accomplish his purpose in employing the catheter. Still it would have been satisfactory to him, no doubt, to find in this treatise that the whole ground had been thoroughly gone over.

Puncture of the bladder for the purpose of emptying it of its contents is very rarely requisite. Professor Gross says of it:—

"It is only in cases of excessive enlargement of the prostate gland, attended with great tenderness and swelling of surrounding parts; in laceration of the urethra, and infiltration of urine into the scrotum; and in deep-seated, impassable stricture that the operation should even be seriously thought of. All other forms of retention will, there is reason to believe, yield to the catheter, aided by time and by soothing measures."

Dessault performed the operation but once during the eight years of his chief surgeonship of the Hôtel Dieu. Mr. Liston had resorted to it only once, so late as 1846. Sir Benjamin Brodie says:—

"Surgeons who see a great number of cases of retention of urine may, in the course of their lives, be called on to perform it in a *few* instances. Those who perform it frequently must often perform it unnecessarily; at least, this is what I should say, judging from my own experience."

Professor Gross has never performed it, though he gives the accounts of two cases, in which he was upon the point of executing it, when the patient in each instance was relieved in an easier and safer manner—one spontaneously, the other by the catheter. The merits and the way of accomplishing the three principal modes of opening the bladder, viz., through the rectum, perineum, and the supra-pubic region, are narrated in the text. From a review of M. Mondière's table of ninety-two cases of puncture of the bladder, the professor infers that

"The recto-vesical operation is less fatal than either of the others; but that it is more liable to be followed by fistula, infiltration, and abscess. As respects mortality, the perineal and supra-pubic punctures are about on a par. The proportion of fatal cases to the number of recoveries is remarkably small." (Vid. *Am. Journal Med. Sci.*, vol. iii. 495.)

The 15th, 16th, and 17th chapters are devoted respectively to the subjects of *incontinence of urine*, *hernia of the bladder*, and *urinary deposits*. These are succinctly, but comprehensively, treated of.

We have now reached in our cursory review of this interesting volume, the all-important topic of *stone in the bladder*, to which the preceding chapter has very advantageously cleared the way. To this subject, the author has devoted more than 170 pages. The chapter is subdivided into sections, each of which discusses some special point in the pathology of calculus: first, its nature and causes; second, its physical and chemical properties; third, its situation; fourth, its occurrence among the inferior animals; fifth, its symptoms; sixth, its physical signs, sounding and diagnosis; seventh, its pathological effects; eighth, its treatment, embracing a description of all the operations practiced for its removal from the bladder. The entire subject has evidently been very carefully studied, and the reader will find here presented to him a very complete exposition of the matter. We do not think that any thing is said which can with propriety be objected to, while the essay, for such it really is, abounds with important truths. We shall make an extract from the text, here and there, as we turn over the leaves, instead of attempting any formal commentary upon so familiar a subject.

In speaking of the nature and causes of stone in the bladder, he says:—

"Coloured persons appear to be remarkably exempt from calculous complaints. Whether this is the case in all countries where the negro resides, I am not informed; but it is certain that the circumstance obtains, in an eminent degree, in the black population of the southwest. During a residence of ten years in Kentucky, I do not recollect to have met with a solitary example of gravel or stone in a coloured person. My impression is that Dr. Dudley, in his large calculous practice, has never cut more than two or three individuals of this description. To what this immunity is due, our knowledge does not enable us to determine. The circumstance is so much the more surprising, when it is remembered that the coloured people of that region are constantly exposed to hard labour, and that their fare is often of the coarsest character."

This is a very interesting fact, and it may be owing to the very circumstances mentioned, viz.:—

"That the coloured people *are* constantly exposed to hard labour, and that their fare *is* often of the coarsest character."

Probably their fare is never luxurious, or but in very exceptional cases; and this, together with the constant, though by no means exhausting labour (for we believe it is almost universally conceded that the slave very rarely works so hard, or accomplishes so much in the same space of time, as the white labourer), to which this class of our population is subjected, are precisely the conditions which are the most likely to protect one from calculous complaints, and to counteract the calculous diathesis.

The relative frequency of calculus in children and adults seems to be a subject of doubt.

"Of 5,376 cases mentioned by Civiale, in his treatise on calculous affections, 2,416 were children, 2,167 adults, and 793 old persons." But among 1,151 children admitted into the Foundling Hospital, London, during 27 years, only *three* cases of stone occurred; in the Military Asylum, at Chelsea, in 6,000 inmates not one case; in the Hôpital des Enfans, Paris, where 3,000 children are annually received, during the seven years from 1835 to 1842, the average number of cases *has been under four*; at the St. Marylebone Workhouse, where there have been on an average during many years between 400 and 500 children, there *has not been a single case* of stone during the last twenty years. The returns from different countries show a great difference in this respect.—(*Brit. and For. Med. Rev.*, vol. xiv. p. 165.)

Of	356	operations reported by	Dupuytren,	only	97	occurred in children under	15.	
"	1,629	" "	Saucerotte,	"	1,195	" "	"	
"	478	at Norwich, "	Marcet,	"	227	" "	"	
"	666	" Naples, "	Renzi,	"	315	" "	"	
"	643	" " "	"	"	321	" "	"	
"	469	" St. Petersburgh,	. .		357	" "	"	
"	175	" Austria, .	. .		55	" "	"	
"	239	" Bavaria, .	. .		116	" "	"	
"	106	" Bohemia, .	. .		28	" "	"	
"	145	" Denmark, .	. .		14	" "	"	
"	42	" Egypt, .	. .		1	" "	"	
"	2,822	" France, .	. .		1,347	" "	"	
"	1,058	" Lombardy, .	. .		796	" "	"	
"	49	" Rome, .	. .		10	" "	"	
"	140	" Sardinia, .	. .		97	" "	"	
"	127	" Ulm, .	. .		64	" "	"	
	9,144	.	. .		5,040			

The following observations are very appropriate:—

"How far the constant use of hot bread, biscuit, and pastry, which are consumed in such enormous quantities in this country, especially in the South-western States, conduces to bring about calculous disorders, we have no means of deciding. That the daily employment of these articles is prejudicial, no one can doubt. Their influence in producing dyspepsia, so common in every part of the Union, is familiar to every observer, and need not, therefore, be discussed in this place. Hot bread in its various forms, frequently only half baked, and generally but half masticated before it is swallowed, is sufficient, if used for any length of time, to wear out the strongest stomach, and to break down the most vigorous frame. What the effects of such a state of the system must be upon the urinary secretion, every pathologist knows. A weakened digestion, with a sour and flatulent state of the stomach, constipation of the bowels, and an irritable condition of the brain, cannot by any possibility produce a healthy blood, any more than a morbid state of the blood can produce a healthy urine."

This is all true, as every one will admit; and one might write a very amusing, or a very serious, commentary upon it, as the spirit prompted at the moment. It is melancholy to see how these vicious practices have in this country seized upon all classes and all ages. People seem determined to continue in error, in some one of these respects at least. Where "the raw material" is of the best description, it is almost always spoiled in the preparation for consumption; and when this is not the case, it is sure to be, as Professor Gross says, "but half masticated before it is swallowed." The last habit is forced upon the young by domestic regulation, and when these grow up to manhood, it is still retained from the fancied pressure of business, or from the more inane force of custom. We have repeatedly been called upon to administer an emetic to children in one of our largest and best regulated public institutions, where dinner *must* be despatched in a given limited time, for the purpose of relieving their stomachs from the *large masses* of unchewed meat and potatoes, which had produced convulsions. And every one whose views of social enjoyment and the process of nutrition are at all what they should be, must often have seen with amaze and regret how rapidly dinner disappears from the tables of private families and of our best city hotels; where gentlemen and ladies devour their food as greedily and impetuously as famished beasts their prey, their faces wearing the same expression of anxiety and thought as when they are considering some weighty matter of business, or some important domestic responsibility, entirely forgetful or ignorant that, for sanitary as well as social benefits—

"Rien ne doit déranger l'honnête homme qui dine."

The physical and chemical properties of calculi, and the various circumstances attending and modifying their situation in the bladder, are narrated at considerable length; and many interesting notices are introduced of their existence in the bladders of inferior animals, of birds, fishes, and reptiles. We need make no comment upon these sections of the volume, nor upon the detailed account of the symptoms of stone. We must call especial attention, however, to the author's remarks upon the physical diagnosis of this affection, as we think them very excellent. He directs how and with what kind of an instrument the "*sounding*" of the bladder should be performed; enumerates the dangers attending or resulting from this operation, if badly done, or executed under unfavourable circumstances; describes the phenomena elicited by the instrument, and their variations under different conditions; he also details the many sources of error in sounding, and explains how these errors may be occasioned; and finally shows how a calculus may really be present in the bladder, and yet give rise neither to characteristic physical phenomena upon sounding, nor to rational symptoms.

The *pathological effects*, or, to speak more correctly, we conceive, the *anatomical* lesions, produced by the existence of a stone, are next pointed out, and then follows the section upon the *treatment*.

This subject naturally occupies a large part of the author's attention. He has spared no effort to make this portion of his treatise complete, and it affords us great pleasure to express our satisfaction at the result of his labour. We are presented with an ample account of the regimen to be pursued, and of the medications which have been found most serviceable; of the plan of dissolving the calculus by means of injections into the bladder, and by the agency of electricity; of the method of removal of entire calculi through the urethra; of lithotripsy, the modes by which this proceeding is accomplished, the conditions favourable to it, and those which preclude it, the dangers attending it, and the accidents produced by it. We will stop for a moment in our enumeration of the prominent topics discussed, to quote a few lines. Professor Gross says, at page 418:—

"I can perceive no reason for administering chloroform in this operation, except in the case of children. On the contrary, I think it ought generally to be avoided. For, independently of the fact that the operation is usually unattended with much pain, it is a matter, I conceive, of no little importance that the patient's mind should be perfectly clear, in order that he may promptly inform the surgeon of his suffering, should any arise, whether from too rough a manipulation, too great a size of the stone, or the seizure and inclusion of the mucous membrane of the bladder. Such contingencies may, it is true, be remote; but it is well enough to be aware of them, and to guard against their occurrence. In children, on the contrary, who are unable to give any satisfactory intimation of their real feelings, anæsthesia is of great advantage. They are saved from suffering, and being rendered perfectly quiet and tractable, the surgeon may deliberately proceed with his manipulations, satisfying himself by a thorough examination of every part of the bladder."

We are glad to find that the opinion which we expressed on this question in our remarks upon Mr. Skey's *Operative Surgery*, in the preceding number of this Journal, are so authoritatively confirmed. We are not prepared to admit, however, that even in the case of children, who are about to undergo the operation, anæsthesia is expedient; for we conceive that it is just as important to avoid injuring a child's bladder as an adult's, and therefore equally unwise for the surgeon to deprive himself of the warning which the child's sensitiveness to injury may furnish him; but in the preparatory sounding of

either adults or children, if the operation be painful, or excite much alarm or agitation, we see no objection to resorting to this calmative agent, but would rather recommend it.

The operations of *lithotomy* are next described, and the circumstances relating to this procedure are exhibited, as in the case of lithotripsy, viz., the instruments which are most serviceable, the mode of operating, the incision of the prostate, the accidents which are liable to complicate the operation, and the means of counteracting or preventing them. The author prefers the lateral operation, and gives an exceedingly interesting series of his own experiences with it, twenty-four in all, which were all successful. He generally employs the scalpel, rather than the gorget; though sometimes he uses an instrument resembling the beaked-knife of Sir William Blizard. The merits of the three instruments are the subject of a few comments. But while the author prefers the lateral operation, he canvasses very fairly the claims of the other methods of cutting into the bladder—the bilateral of Le Dran, the quadrilateral of Vidal de Cassis, the recto-vesical of Sanson, and the suprapubic or the high operation. The operation of *lithectasy* is likewise adverted to—viz., making an opening into the urethra through the perineum, smaller than in ordinary lithotomy, and slowly dilating the neck of the bladder until the aperture is sufficiently capacious to admit of the passage of the foreign body. We have also an account of the operation "*en deux temps*," as it is called, one portion of the procedure having been accomplished, but the whole not executed until after the lapse of some time, the patient having recovered from the effects of the first stage, or some obstacle which existed to the completion of the undertaking having been removed. The subject of stone in the bladder is concluded by some observations concerning the complaint in the female and the methods of relieving her. In fine, we do heartily assure our readers that they will find this whole matter most admirably treated of by Dr. Gross.

The first part of the book is completed by some sensible comments upon foreign bodies in the bladder.

The second part is allotted to the consideration of injuries and diseases of the *prostate gland*. We pass over the chapter upon *wounds* of this body, and that referring to *inflammation* of the same, together with certain conditions of this organ, which usually originate in prostatitis—abscess and ulceration.

Hypertrophy of the prostate is considered in the third chapter. The author dissents from the opinion of Home and others, that the left lobe of the gland is more frequently involved than the right:—

"The opinion is not borne out by the results of dissection, and no reason, anatomical, physiological, or pathological, can be assigned for the occurrence, supposing it to exist."

This is probably the truth. Rokitansky says:—

"The lateral lobes are the chief seat of the enlargement, which affects both uniformly, or predominates on one side."

The details of the modifications in form, dimensions, and internal structure which this exaggeration of the nutritive process impresses upon the gland are ample, and are well illustrated by many original drawings from nature. Two varieties are described: one in which the body is rendered preternaturally hard, so that the tissue tears with difficulty, and opposes considerable resistance to the scalpel; the other, more soft and vascular, and usually larger. In both, when the gland is cut or torn, numerous granulations are seen scattered over the surface, more abundant in the soft than in the hard variety, and con-

taining a milky fluid also more copious in the former than in the latter. The intimate nature of hypertrophy of the prostate does not seem to have been sufficiently investigated. Rokitansky's account is very unsatisfactory. He says:—

"The substance of the gland in these cases appears normal, occasionally a little softened, of a spongy elastic consistency, and succulent, *i. e.*, its ducts contain much secretion; in other cases it appears tough and coriaceous, without visible alteration of structure. The formation of fibrous tumours is often complicated with this benignant variety of enlargement."—*Path. Anat.* vol. ii. p. 257, Syd. ed.

C. Hanfield Jones, in a paper on the prostate gland, published in the *London Medical Gazette*, vol. v. p. 328, describes the terminal follicles of this body as being

"Each, for the most part, invested and separated from the adjacent ones by a quantity of connecting tissue disposed in fasciculi, which are closely woven together, and include spaces which are occupied by the glandular structure; it consists principally of the white fibrous tissue, but also contains numerous bands resembling closely those of organic muscle."

And he thinks that in senile hypertrophy of the organ, this fibrous tissue becomes especially increased, thereby producing the granulated appearance seen on cutting into the gland, and the knobbed condition of the surface which sometimes exists. Professor Gross adopts this opinion. It is probable, however, that in many cases there is a real development of true glandular structure, lobes, lobules, and acini, as well as of parenchymatous tissue; but we should presume, without having any positive data to predicate the opinion upon, that such a development is more frequent in that variety of prostatic hypertrophy which occurs before old age, from irritation and increased vascularity of the organ, and not in advanced life, when the growth of the higher grades of tissue is much less active, and when those of inferior anatomical and physiological importance predominate. This view is rendered more probable, too, by the difference in colour of the gland in senile hypertrophy, as compared with that which is observed earlier in life; in the former it is of a grayish or drab tint, in the latter the red predominates, showing a greater degree of vascularity in the last.

The author's remarks concerning the causes of this affection, the periods of life in which it is met with, its progress and symptoms, are valuable, and, we believe, very correct, though different in many respects from the currently received views. And his observations on the diagnosis of the disease, and the morbid connections which it establishes with other organs, are equally commendable. He pretends to no peculiar success in the *treatment* of this troublesome and painful malady—of the senile variety, at least—but makes the reader aware of all that can be done, and how to accomplish it.

The remaining pages of this part of the book are taken up with sufficiently extended notices of the less common affections of the prostate.

The third and last portion of the volume is devoted to the *diseases and injuries of the urethra*. It is not necessary for us to follow the author through the whole of this chapter. For, from what we have seen of the book, we can assure our readers that he has not slurred over any important topic, but has given a fair consideration to all. We shall, therefore, examine only a very few of the chapters which remain. We may remark that we do not see why he should have omitted all consideration of *inflammation of the urethra*. This is a disease which would be benefited by particular study, for certainly there is none in the whole category of acute inflammations which is more troublesome and perplexing in its treatment.

The investigation of the pathology and treatment of *stricture of the urethra* is the object of the third chapter of this part of Professor Gross's valuable work. He divides strictures into the *spasmodic* and the *organic;* but limits his observations to the latter. We do not see any reason why spasmodic stricture should have been neglected in such a treatise as this, rather than neuralgia of the urethra and of the bladder, to each of which a chapter has been allotted. It is surely a very distressing and troublesome affection, one which requires proper treatment, and which is very much benefited by wise measures, as well with reference to its permanent prevention as for its present relief. And we think its due consideration is of the greater consequence, inasmuch as it can scarcely fail, if its visitations are frequent and protracted, to induce a permanent thickening of the mucous membrane of the urethra by the considerable nervous and vascular excitement which these paroxysms occasion. Moreover, the analogy between the lining membrane of the urethra and other mucous membranes, as well as accurate observation of the affection in question, render it almost certain that a frequent cause of the spasmodic stricture is a greater or less degree of evanescent vascularity of the tissue, which may become, by a very easy transition, a permanent condition.

Organic stricture may, according to the text, be either simple or complicated, common or traumatic, partial or complete, soft or callous, dilatable or undilatable, permeable or impermeable, recent or old. As to its *seat*, the author admits that "no part of the urethra, except, perhaps, the prostatic, is entirely exempt from organic stricture." But this exception is not a positive one, although it is undoubtedly true that the prostatic portion of the canal is very rarely affected. Ricord, however, has seen this portion of the urethra narrowed, independently of the prostate, and a similar case is cited by Mr. Crosse, of England, p. 616. The most common point of coarctation is variously stated by different authorities, as Dr. Gross remarks. He says from his own experience, he infers that

"The affection is most common, first, in that portion of the canal which is comprised between the scrotum and the head of the penis; secondly, at the membranous part of the tube, or at the junction of this with the bulbous part; and, lastly, at the anterior extremity, within a few lines of the meatus. I have never seen a stricture at the prostatic portion of the canal, and therefore conclude that it must be exceedingly rare here, if indeed it ever exists"—p. 616.

With reference to the *number, form, consistence, colour, and symptoms* of organic strictures, we see nothing in the text which need detain us.

In conducting the *physical exploration* of the urethra, to establish a correct diagnosis, the author prefers the use of a common silver catheter, of moderate size and a little conical at the extremity, and where greater accuracy is requisite a wax bougie; he also is disposed to think favourably of the gutta percha bougie, suggested by Dr. Bigelow, of Boston, which should be introduced sufficiently warm to receive and retain the impression of the stricture into which it is passed. He does not attach much value to examinations made in this manner for the purpose of ascertaining the form and dimensions of the obstruction. Whatever may be the instrument employed for the exploration, the necessary caution is strongly inculcated.

"All examinations of this kind should be conducted with the greatest gentleness and deliberation. All rough and hasty proceedings are calculated to do harm, by exciting spasm and irritation, and should, therefore, be carefully avoided. By slow and cautious manipulations, the point of an instrument may often be insinuated into the tightest stricture, or into one so tender and irritable as to resent every attempt of an opposite description"—p. 625.

The effects of continued stricture of the urethra upon this canal itself and other organs, adjoining or remote, are described in several pages. The only objection which we find against this portion of the author's narrative, and we venture to urge the same criticism against his exposition of the *symptoms* of stricture, is that it is somewhat deficient in force of expression. We believe that his statements are strictly correct, and that he exhibits a very full view of the subject; but we think that the truth will bear a much warmer tinting. The colours are all here, but they are not so artistically arranged and combined as they might have been. There is as much difference, in this respect, between our author's picture and that which Brodie has drawn of the same disease, as between a thunder storm as ordinarily depicted, and one which roars and flashes from the canvass of Turner or Vernet.

The *causes* of stricture are stated to be either traumatic or inflammatory, most frequently the latter; and among these, gonorrhœa is alluded to. The author does not believe that the *injections* which are made use of in the treatment of this variety of inflammation should be held answerable, as a general rule, for the production of the coarctation; he very properly, we think, ascribes this condition to *the disease*, and not to the means used for its cure.

In his account of the *treatment* of this affection, Professor Gross describes, as the most important methods, those by dilatation, compression, cauterization, incision, and external division; and exhibits what he considers are the conditions of the stricture to which each plan is most applicable. He lays down certain preparatory measures as necessary to be enforced prior to the commencement of any direct mechanical interference. He says, very justly,

"Too much stress cannot be placed upon this preliminary treatment; indeed, I should consider it highly culpable to reject it under any circumstances. When the way has been thus paved, the particular kind of treatment is to be determined by careful consideration of the nature of the obstruction. There are few points in surgery which require more judgment and experience than this"—p. 633.

After alluding to, and rejecting as improper and insufficient, that plan which proposes to cure stricture by "constitutional means, especially rigid abstinence carried almost to starvation, and the daily use of nauseating doses of tartarized antimony, or the frequent exhibition of emetics, conjoined with rest in the recumbent posture, and the avoidance of all sources of bodily excitement," he discusses the method of *dilatation*. This plan, he admits, "is more frequently applicable than any other that has yet been devised." He describes the instruments various in material, dimensions, and shape, which are, or have been, employed, and expresses his own preference as follows:—

"My conviction, founded upon ample experience, is that the very best instrument for dilating a stricture is the common silver catheter, with a slightly conical point. I have employed this instrument in the treatment of this affection for upwards of twenty years, and nothing could induce me to abandon it."

Its recommendations are stated to be its lightness, firmness, durability, and the fact that it is often requisite not only to pass through the stricture, but also to leave a hollow instrument in the bladder. Whether or not *all* these arguments are really valid can only be ascertained satisfactorily by personal trial. We have been inclined to think, in the few instances in which we have tried the silver catheter, that it is too light, and not sufficiently firm for the purpose; but far superior, in most cases, to the gum, linen, ivory, or whalebone bougies; the first two are too yielding, and the last too brittle to be

relied upon. We would not, however, advance our own opinion on this point as in opposition to the author's, whose experience with the catheter has been infinitely greater than our own. Our preference is for the solid steel or silver instrument, and we think that the point should be rounded rather than conical. There are two methods, Professor Gross mentions, by which the process of dilatation may be accomplished: one by a rapid procedure, "a small or middle-sized" instrument being made to traverse the stricture, as gently and tenderly as may be, and allowed to remain in the bladder for twenty-four or forty-eight hours, or withdrawn through the stricture and immediately followed by one or more of gradually increasing size; the other by a more slow and patient process, in which an instrument is first introduced which will readily pass the obstruction, and after two or three days another of larger diameter, and so on at intervals, until a large instrument can be easily passed, when it may be used every day, at first, and gradually less and less often. By this proceeding also the catheter may occasionally be left in the bladder. The first plan is more rapid in its effects, and is the one which the author adopts; it is liable, however, to be followed by inflammation of the urethra, prostate gland, and neck of the bladder, although he has never known it to assume a serious character. The second method is more slow, but generally succeeds in the cases to which it is applicable, is less painful, and not liable to produce any injury. Dr. Gross says, p. 639—

"The process of dilatation, or, as it might with great propriety be termed, the treatment by compression, is mainly applicable to soft and recent stricture. To those of an opposite character it is utterly unsuited, and should always give place to incision, either from within or without. I have no patience with dilatation for the removal of a hard, tough, narrow, and almost impermeable obstruction; such a case cannot be managed successfully by such a procedure; the most prolonged use of the instrument can do no good, and is only calculated to deceive the patient and bring surgery into discredit."

And in speaking of *compression* as applied to the anterior face of the stricture, he expresses strongly his want of confidence in it, entertaining, indeed, "a feeling against it almost amounting to aversion." Now we think that, in view of the success which Brodie and other distinguished surgeons have met with in the treatment of this affection by dilatation, and in view also of the acknowledged dangers and unfortunate results which have attended the employment of the other chief curative means, cauterization and incision, this decided declaration of our author is rather hasty and exclusive; and it is calculated to do harm by inducing those who have not his own skill in the use of instruments more dangerous than the dilator, to give up a safe, and, if patiently pursued, successful practice, for one which in their hands will probably do much more harm than good. It is, perhaps, the author's disinclination to, and comparative want of trust in, this plan of treatment, which has made him somewhat less careful and minute in his directions for conducting it. He lays small stress upon the dangers attending the employment of dilating instruments, such as the formation of false passages, injuries to the urethra or the prostate gland, and on the way of avoiding these accidents; nor does he allude to the importance and decided advantages of administering opium or chloroform, particularly the former, just before, or immediately subsequent to, the use of the dilator. And he might, we think, with perfect propriety have included in his enumeration of the cases to which this plan of treatment is appropriate, others besides such as are "soft and recent."

The following observations on the treatment by *cauterization* are extremely judicious:—

"Cauterization, properly used, is a valuable curative agent; but if indiscriminately employed it is capable of doing serious, if not irreparable, mischief. The circumstances to which it seems to be more particularly adapted and to which, in my judgment, it ought to be restricted, are those in which the stricture, without being very tight or extensive, is of a firm, gristly, and resilient character, and in which there is an undue amount of morbid sensibility of the mucous membrane of the urethra. I never resort to it where the obstruction is either very slight or very great; for in the former case I have rarely failed to effect a cure by dilatation, and in the latter I have almost always been obliged to have recourse to division. It may be further observed that cauterization should seldom be relied upon alone, but that its action should always be aided by the bougie or catheter, a mode of proceeding which greatly expedites the cure, and affords an additional guarantee against relapse, which is so apt to occur when this precaution is omitted"—p. 641.

His directions with regard to the use of caustics, both the nitrate of silver and the potassa, the latter of which he has often employed with the most happy effects when the lunar caustic had failed, are worthy of all reliance. But, we would ask, would it not have been well, while setting forth the applicability and the merits of the caustic, to likewise point out its dangers and the objections to its employment? for that there are strong contra-indications to its use cannot be denied.

"When a stricture is very old, firm, and unyielding, or almost cartilaginous in its consistence, no mode of dilatation, however judiciously and perseveringly employed, can succeed, either alone or in combination with cauterization, and in such a case I never hesitate to resort at once to *incision*, satisfied that nothing else will answer. I have repeatedly had under my charge patients who had been subjected to the treatment by dilatation for months and months, without the slightest benefit, and who were almost instantly relieved by the operation under consideration. This fact has been witnessed again and again by my private pupils, and by the public classes of the University of Louisville. And why should there be any hesitation or doubt concerning this operation? Where are its dangers, or the difficulties of its execution? I confess I cannot see any," &c.—p. 646.

We need not, surely, say that the last three sentences of this quotation prove that the author is so wedded to this method that he has become blinded to its dangers, or that he has closed his eyes to the facts which have been repeatedly cited to caution the profession against its employment. The instruments which he advises for the performance of this operation are substantially like those of Stafford. But, although we cannot speak so approvingly of the treatment by incision, if such a proceeding should become necessary, we should not hesitate to follow the author's directions.

A modification of this operation is that by *scarification*.

"The process is best adapted to the milder varieties of firm, gristly contractions, seated in the spongy portion of the canal"—p. 649.

The last mode of treatment which Professor Gross expounds is that by *external division*. The operation which he describes is spoken of as being

"By no means free from danger, and requires the most consummate skill for its successful execution. None but a madman or a fool would attempt it, unless he had a profound knowledge of the anatomy of the parts, and a thorough acquaintance with the use of instruments. Of all the operations of surgery, this is the least to be coveted"—p. 650. "The method described is mentioned in such a way as to induce us to infer that it is the same as that which 'has recently met with a strenuous advocate in Mr. Syme, Professor of Clinical Surgery in the University of Edinburgh.'"

But there is an important difference between the two operations. In that

described in the text, p. 651, the position of the patient is the same as in lithotomy.

"A staff or grooved director, either straight or slightly curved, is *conveyed to the seat* of the obstruction, and confided to an assistant, who also holds up the scrotum. The surgeon, sitting on a low chair, or resting upon one knee, takes a narrow-bladed scalpel, and makes an incision into the raphé of the perineum, about an inch and a quarter in length, taking care, on the one hand, not to interfere with the rectum, and, on the other, not to extend it too high up towards the bulb of the urethra. The knife is plunged in, at the first stroke, to a considerable depth, and is then used to divide, by successive touches, the parts overlying the stricture. Feeling now for the end of the staff, the point of the instrument is inserted into the contracted part, which is next freely divided from before backwards. A catheter is now introduced into the bladder, and the case is treated, to all intents and purposes, as one of lithotomy."

The italics in the above are of our own making. In Mr. Syme's operation,

"A grooved director, slightly curved, and small enough *to pass readily through the stricture*, is introduced, and confided to one of the assistants. The surgeon, sitting or kneeling on one knee, now makes an incision in the middle of the perineum, or penis, wherever the stricture is situated. It should be about an inch or an inch and a half in length, and extend through the integuments and subjacent textures exterior to the urethra. The operator, then taking the handle of the director in his left, and the knife, which should be a small straight bistoury, in his right hand, feels, with his forefinger guarding the blade, for the director, and pushes the point into the groove behind, or on the bladder-side of the stricture—runs the knife forwards, so as to divide the whole of the thickened texture at the contracted part of the canal—and withdraws the director. Finally, a No. 7 or 8 silver catheter is introduced into the bladder and retained by a suitable arrangement of tapes, with a plug to prevent trouble from the discharge of urine." (*On Stricture of the Urethra and Fistula in Perineo*, by James Syme, 1849.)

The peculiarity of this procedure consists in cutting down upon a grooved director previously introduced *through the stricture*, whereas in Dr. Gross's account "the director or staff" is merely inserted along the urethra *as far as the commencement of the obstruction*. But this element in the operation is of great importance in giving more certainty to the course of the incision, and we think that it renders Mr. Syme's proceeding much the more worthy of imitation.

Professor Gross next directs his attention to polypoid and vascular tumours of the urethra, neuralgia, hemorrhage of, and foreign bodies in, this passage. We have already occupied so much space in our notice of this work that we shall not comment upon these chapters.

Chapters 9 and 10 present respectively a very good exposition of the pathology and treatment of urinary abscess, or, as Professor Gross prefers, and for very sufficient reasons, to term it, "*urethral*," or "*sub-urethral*" *abscess*, and *fistula of the urethra*. The author differs from Sir Benjamin Brodie in not limiting the starting-point of these affections to the lining membrane of the canal, but admits that they may also originate in causes acting from without and involving the lining membrane of the urethra subsequently.

The only remaining topics treated of by Professor Gross are *false passages* from the urethra, *lesions of the gallinaginous crest*, and *inflammation* and *abscess of Cowper's glands*.

We have long trespassed upon the patience of our readers, but the character and bulk of the volume must be our apology. It has afforded us much pleasure and instruction, and we shall always refer to it for advice in cases of difficulty and doubt. We sincerely congratulate its author upon his happy

execution of so laborious and responsible an undertaking; and we hope, for our own benefit, for the advancement of professional knowledge in our country, as well as for his peculiar fame, that he will devote his time and talents to other subjects of equal importance to those which he has elucidated.

We shall be expected to speak of the literary and mechanical execution of the book. The style is plain, rather severe; it is not free from inelegancies and inaccuracies, but we attribute them to the author's not having had the opportunity of revising the publication. The plates are admirably done, and the whole appearance of the volume is very commendable.

F. W. S.

ART. XI.—*Letters to a Candid Inquirer on Animal Magnetism.* By WILLIAM GREGORY, M.D., F.R.S.E., Professor of Chemistry in the University of Edinburgh. Philadelphia: Blanchard and Lea, 1851.

DR. GREGORY is a most thorough believer in Animal Magnetism. He believes everything that ever was asserted of it, and is evidently prepared to believe everything that ever will be asserted of it. His is no partial possession. Animal magnetism has as complete control over him as he would ever wish to have over one of his subjects through the "odylic influence" that streams from his fingers, or his eyes, or from his intense will. His belief is not only a monstrosity, but an enormous one. Its big open mouth swallows everything. It would be a small thing to say of it that it "swallows a camel."

We have no idea of writing a formal staid criticism upon his book. Such a mass of folly, though it wear a scientific guise, and come from a professor in the ancient and renowned city of Edinburgh, and is lauded in certain literary and scientific quarters, deserves no such notice. We will glance, however, at some of the notions, or rather dreams, of the professor, as illustrative of the *immense capabilities of human belief.*

Dr. Gregory not only believes in all the different ways in which the magnetic influence is exerted—by passes with the hand, by breathings, by the fixed look, and by the silent but fixed will; but he also believes that the subject needs not to be near the operator. They may be separated by miles upon miles of distance, and by walls of brick and mortar; and yet the effects come. Why should he refuse to believe this? He has seen it exemplified in his own family. Mr. Lewis, "the distinguished negro magnetizer" (negroes being discovered to be highly susceptible subjects, this field promises to be highly cultivated by amateurs), was present at the professor's house one evening, and operated upon the company, about fifty, *en masse.* A member of the family, a lady, who was one of those that chanced to be affected, had a headache in consequence. The professor spoke to Mr. Lewis about it in the morning. He said, "Oh! never mind her headache. I shall think of her some time to-day, and dismiss her headache." At half-past three she was quite sure that the absent Mr. Lewis was magnetizing her, and soon went to sleep and woke up free from the headache. It was of course found that Mr. Lewis did magnetize her at that time, although he was in another street at some distance. How very ungallant, not to say cruel, Mr. Lewis was to wait from morning till precisely half-past three in the afternoon before he relieved the

lady! Why he did not do it at once when the professor spoke to him we are not informed.

The magnetic influence, Dr. Gregory asserts, can be sent to any distance attached to some substance, as water, paper, gloves, &c. A Mr. Atkinson, who, though not a physician, employs mesmerism, as Dr. Gregory says, to a great extent as a medicinal agent from pure motives of benevolence, sent a pair of mesmerized gloves to a patient in Paris "suffering from tic"—they "relieved her intense suffering, which all other means had failed to do." He sent "newly-mesmerized gloves" every week, as the old ones not only lost their power, but came back charged with an influence which caused disagreeable sensations, and even gave him a little shock from the lady's tic. A mesmeric cleansing was therefore needed before they could be used again. Mr. Atkinson says, "I have experienced the same sympathetic influence as in the case of gloves from letters, especially if the paper were glazed, and I could thus tell the state of the patient before reading the letter. Sometimes the heat and pricking have been so strong, that I have laid the letter on the table to read without touching it. The influence from a feverish state would cause my hand to feel hot and feverish, even to others, the whole day. On one occasion, on reading a letter from a distance, I had the sensation of tears. It was so strong that I felt sure the writer had been in tears while writing it, although nothing in the case or in the letter led to the conclusion. It proved, however, on inquiry, that the writer had been in tears, and that the tears had fallen on the paper." This same Mr. Atkinson also says, "On one occasion I *breathed* a dream into a glove, which I sent to a lady; the dream occurred"—that is, we suppose, she had the dream the next time that she slept. As he is so benevolent, we presume that the dream he sent was a pleasant one. The learned comment of Professor Gregory upon these statements is that they "tend to throw light upon the propagation of disease by contagion."

The professor is a full believer in clairvoyance in all its modes and forms. Clairvoyants do not see with their eyes at all. Such vulgar means of vision are discarded altogether. They see from the side or back of the head, from the pit of the stomach, &c., and sometimes from no particular part. They see at all sorts of distances, and through all sorts of things. It is generally quite immaterial to a practiced clairvoyant whether she (I say *she*, for clairvoyants are commonly women) is to see and describe things in the room, or in another house, town, or country, or world. "Yet it often happens," says Professor G., "that a clairvoyant, who can see and describe very well all that is in the same room, or the next room, or even in the same house, cannot thus travel to a distance, without passing into a new stage." When once in this "new or travelling stage," the operator can send the subject anywhere, into any house far or near, and she will describe what is passing there. So says our erudite professor, and so say magnetizers generally. If this be so, it appears strange to us that clairvoyance has not played a very considerable figure in revealing family secrets, and making mischief in neighbourhoods. But we presume that the reason is that magnetizers are a peculiarly pure and benevolent class of men, and are uncommonly free from the instigations of the devil.

Sir John Franklin has received a very large share of attention from clairvoyants. They have seen his vessels encased in ice, and described minutely the situation of things—as minutely as some of them described the destruction of the Atlantic just before the news of her safety reached New York. Some clairvoyants predicted the return of Sir John a long time ago. Dr. Gregory finds a ready excuse for this blunder in their benevolence—he thinks it is because they "are strongly affected by sympathy with the feelings and wishes of those who consult them, which feelings and wishes they, as it were, reflect."

Professor Gregory agrees with his brother magnetizers in thinking that clairvoyants have the power of detecting thieves, and cites some cases in proof of it. He mentions a clairvoyant who traced fifteen bales of cotton, which had been stolen from a vessel in New Orleans, to another vessel in Havre. The cotton was found where the clairvoyant said it would be.

If what magnetizers assert be true, it is a little strange that animal magnetism has not been put to more practical use in recovering lost and stolen property, and in detecting thieves, and, indeed, all sorts of criminals. The subject has long been before the community, and there has been ample time to demonstrate most fully the capabilities of animal magnetism in this respect. The public seem to be singularly obstinate in rejecting the precious boon which is offered them by the magnetizers. Although most new things meet with a very ready reception with the multitude, whether scientific men believe them or not, the new discoveries of animal magnetism, though they answer very well for an evening's entertainment, do not seem to be practically believed to any great extent. At least this is the case with the most valuable of them. Though clairvoyants are proved, as is asserted by such wise men as Dr. Gregory, to have such powers, their services have as yet been seldom called for in detecting thieves and other criminals, and never, we believe, by those who are particularly skilled in such matters. The old-fashioned modes of detection are still in vogue with the police. Either the community must be singularly blind to their interests, or Professor Gregory and his compeers are blind to the truth —we will not say which.

We once witnessed an examination of a clairvoyant in regard to some stolen money. All the questions were prompted by a suspicion of a particular individual, and were, therefore, leading questions, and were answered accordingly. Though to us it was a very bungling performance, not having the magnetic capacity of belief, the many mistakes made by the clairvoyant did not prevent the rest of the company from believing it all to be correct. And the thief was followed upon the track marked out, but no such man had been seen by any one on that track, although one of the places where the clairvoyant saw him stop was a public bar-room.

If clairvoyants can see things through walls, through anything, and at great distances, it is not strange that they can see what is within themselves. Upon this power of *introvision*, as it is called, Dr. Gregory thus remarks:—

"The most eloquent descriptions ever given of the wonders of the human body, never produced half the effect upon the mind which is caused by the simple but graphic words of the clairvoyant, who is perhaps altogether ignorant of anatomy, and yet sees, in all their beauty and marvellous perfection, the muscles, bones, vessels, nerves, glands, brain, lungs, and other viscera, and describes the minutest ramifications of nerves and vessels, with an accuracy surpassing that of the most skillful anatomist. He will trace any vessel or nerve in its most complex distribution; the whole to him is transparent, bathed in delicate light, and full of life and motion. Some at first are terrified at seeing these wonders, but soon learn to admire and delight in them. But it is only a certain proportion of clairvoyants who pass into that particular stage, and as experiments are most frequently made on the uneducated, or half educated, they are often at a loss for words to describe what they see. I cannot doubt that when intelligent medical men shall be themselves rendered clairvoyant, some useful information will be derived from the exercise of this power.

"It is easy to understand, that when the sleeper sees his frame in this perfect way, he can detect disorder and disorganization in it. This, indeed, he very readily does, and his diagnosis is often confirmed by that of the physician who attends him when he is suffering from illness.

"The clairvoyant, in some cases, possesses the same power in reference to the bodies of those *en rapport* with him. He describes their structure, and its

derangements; and I have good reason to believe that in some instances, when the disease is of an obscure nature, his diagnosis has proved, and has been acknowledged to be, correct.

"The clairvoyant who possesses this power can often exercise it at a distance, with the help of the hair or of the hand-writing. I have seen it done both ways, and repeatedly with very great minuteness and accuracy. The observations of the clairvoyant have always corresponded to the opinion of the physician who knew and treated the case, but have often gone further, and in the subsequent opinion of the physician, correctly in the cases I have studied."

Now all this is asserted, not by some impudent and ignorant travelling lecturer, but by *Doctor* Gregory, Professor of Chemistry, in the city of Edinburgh. If it be true, what a change it will effect in medical science! Clairvoyance is to be the great means of exploration both in health and disease. Every physician must have his clairvoyant. And he need not leave his study to diagnose disease—a little of the patient's hair, or even some of his writing, will be all-sufficient to reveal his condition. From what toils, what exposures, will this save the physician!

Wonderful as all this is, there are greater wonders still. The clairvoyant, says Professor Gregory, "will often predict the course of disease and its termination, in those persons with whom he is in *rapport* or sympathy." And he mentions a case in which the time of death was accurately predicted six years before it occurred. And this power of *prevision*, as it is termed, has relation not merely to sickness, but exists in regard to all kinds of events. Animal magnetism has restored to the world the gifts of prophecy in the persons chiefly of women and negroes, the latter having been found of late to be peculiarly susceptible as clairvoyants.

But the clairvoyant has not only the power of prevision, but of *retro*-vision also. And Dr. Gregory suggests that "by the means of some very lucid clairvoyants, many obscure points in history might be cleared up, and that by the discovery of documentary evidence." We fear that the public will be as obstinate about this as they have been about employing clairvoyants in the detection of thieves.

The past, the present, and the future, are then, according to Professor Gregory, all open to the eye of the clairvoyant! When all the scientific and learned men in the world shall come to agree with him, and each shall be busy with his clairvoyant, how vast and varied and rapid will be the accumulation of knowledge! A new era will open upon us! All the old lights will become dim, extinguished in the meridian blaze of clairvoyance!

Professor Gregory is a full believer in what is called phreno-magnetism. And from his own account of himself, he is a very skillful player upon the bumps—they always answering to his touch as readily and correctly as the keys of a piano would do. We have heard, in our day, some wrong notes responded to travelling magnetizers as they have played upon the bumps, but we presume Dr. Gregory never makes any mistakes, nor his subjects; he knows just where the organs are, and his subjects undoubtedly know quite as well as he does.

Dr. Gregory informs us that only a few of the clairvoyants can thus have their heads played upon, and, as he is never at a loss for a reason for anything, he thinks that "the sensitiveness to touch over the cerebral organs belongs to a particular stage of the sleep." He gives quite a full account of two cases in which the cerebral music was exactly to his mind. Of one of them, he says, "If, while benevolence was in action, I touched acquisitiveness, he instantly collared me to recover what he had given me; if combativeness was touched, before I could remove the finger, he had struck out with his fist, and

assumed a very pugnacious attitude. When I combined benevolence and acquisitiveness, he pulled out money and offered it; but, on my attempting to take it, always withdrew it, his eyes being closed, and told me he required it more himself. When in the act of falling on his knees, veneration being touched, the slightest touch on self-esteem sent him up like a shot, or combativeness made him attack, in the fraction of a second, who ever happened to be before him. In short, I could *play* on him exactly *as on an organ*, producing any expression, gesture, or action I pleased, simple or combined." This, with the addition of the baby scene, produced by touching philoprogenitiveness, is a very good representation of the exhibitions of phreno-magnetism made night after night, with all the marks of a thoroughly learned lesson, by travelling lecturers.

Dr. Gregory speaks of some peculiarities in this case. "I could excite," he says, "laughter by touching the organ of gaiety or mirthfulness. But I could also cause laughter by touching the angles of the mouth, when it often became very violent. In either case, I had only to touch the middle of the chin, in order instantly to change the laugh into the profoundest gravity. This fact was pointed out to me by Mr. Bruce, who had studied the case four years before. He also told me that touching a certain part of the leg caused the young man to dance. I tried this, but probably did not touch the right spot, or touched it too strongly, for the result was a sudden and most violent kick, fortunately received by a table, and accompanied by a very angry pantomime. This I saw several times." As this clairvoyant had been practicing at least four years, it is no wonder that, like a true amateur, he added some "peculiarities" to the otherwise monotonous exhibitions of phreno-magnetism. But these peculiarities are very peculiar. Professor Gregory accounts for them by saying that "the effect of touching certain parts of the body no doubt depends on their nervous connection with the brain." That is, the corners of the mouth in this clairvoyant had a "nervous connection" with the organ in the brain that makes us laugh, the middle of the chin with that organ that makes us grave, a particular spot on the leg with the organ that makes us dance, and another spot, so close to the last that even so acute an observer as Dr. Gregory mistook between the two, with the organ that makes us kick with violence and anger—some department, we suppose, of the organ of combativeness. Dr. Gregory hints that perhaps he touched the dancing spot, but "too strongly," and therefore kicking resulted in place of dancing; but we think that on further reflection he will conclude, that it is more probable that the kicking and dancing spots are distinct, but lie very near together. Indeed, some further experiments with this clairvoyant, under the observant eye of Dr. Gregory, might settle the matter. He has settled quite as nice points before. For example, he says, "In the region of the supposed organ of alimentiveness, I found within a small space three different points, the touching of one of which produced excessive desire to eat, of another the desire to drink, of the third, sensations of smell. To obtain these results, it was necessary only to move the point of the finger one-fourth or one-eighth of an inch, the three points lying in less than the surface of a shilling." Now the nice fingers that made this discovery are certainly competent to decide beyond a doubt whether the "nervous connections" with the dancing and kicking organs are in one spot, or in two different spots.

Professor Gregory thinks that Baron Von Reichenbach has discovered the existence of a power, or force, or influence, or fluid (for all these terms are used in relation to it), which he calls odyle. It is analogous, it is said, in many respects, to the imponderables, light, heat, &c. It is the agent which,

in his view, produces all the various phenomena of Mesmerism, Animal Magnetism, Electro-Biology, Hypnotism, Psychology, &c., with which believers in such things have been dazzled for the last half century. Dr. Gregory speaks of the "odylic atmosphere of the operator," which it seems is distinctly "luminous" to many "lucid persons," and the phenomena are to be attributed to "emanations" of this odyle, which "traverses space as light does; only, as appears from the observations of Reichenbach, not quite so rapidly."

In explanation of clairvoyants seeing things at a distance, Professor Gregory says, "It is obvious that to an influence like odyle, as to light, distance may be a matter of no importance." But this does not exactly explain why they see through walls of stone, or brick and mortar. If the odyle goes through them, light, which he compares to it, does not—in this respect, these two imponderables differ, which Dr. Gregory, with all his acuteness, has failed to notice. Perhaps odyle is more penetrating than light, or is more diffusible, and so gets round obstacles more readily than light does. It seems to move in very straight lines, in some cases at least, for, when Dr. Gregory plays on the keys of the cerebral organ in phreno-magnetism, the odyle goes straight to the organ pointed at, and there is no escape of it to the neighbours, even though it may be small, and may stand amid a cluster of small organs. There is no getting away from facts, however; and what if odyle does sometimes go very straight, and at other times take a crooked and winding course! So subtle a thing may, of course, be very accommodating—it must be, in order to produce such a variety of results as Professor Gregory attributes to it.

We have no idea of treating extensively of this new imponderable, but will merely notice some of its modes of operation.

Dr. Gregory tells a story about "an old house near Edinburgh, long since fallen down," of the truth of which he has no doubt (doubting being a thing to which he is little accustomed), and he endeavours to account for the facts by animal magnetism. A box of bones was found, he says, upon the premises; and he accounts for the ghosts by supposing that the odyle from those bones entered the brains of those who saw them, and there produced the visions.

Where past events are seen by the clairvoyant, Dr. Gregory supposes that he "follows their odylic traces upward." That is, every event sends down the stream of time an "odylic trace," and the clairvoyant (*how*, he does not inform us) follows it up till he comes to the event itself. He does this very much as "a dog, liberated from confinement, traces his master." This theory, he says, "agrees with that old one, which maintains that every event leaves an indelible trace, which continues to exist as long as the world to which the event belongs." But how the clairvoyant sees *future* events it seems to puzzle even Professor Gregory to tell. The "odylic traces" fail him here—no odyle can come from things which do not as yet exist. Though he hints that some explanation may be found in the old saying that "coming events cast their shadows before," and that the present contains the germs of all that is future, he says, with an air of doubt and carefulness we have not seen in him before, "We come here on ground which quakes and gives way beneath our feet." But he says also, "I hold fast to the facts;" and he is very sure that "patient and persevering research, carried on in the sincere love of truth, will, in the end, enable us better to understand even these obscure phenomena." And we have no manner of doubt that his expectation will be realized. For minds, like those of Reichenbach and Professor Gregory, that are satisfied with the very "luminous odylic" explanation of *retro*-vision, cannot exist long without having quite as satisfactory an explanation of the

mode of seeing coming events. For our part, we are puzzled to know why Dr. Gregory, who has explained to his own satisfaction so many mysteries quite as great, all at once balks at this.

Professor Gregory very strongly commends the study of animal magnetism to those who have the care of the insane. He says that, "in many cases the essence of insanity is some disturbance of the natural distribution of odyle in the system." He believes in the old idea of the agency of the moon in causing insanity, and says, "the effect of the moon on the insane" is to be referred to the fact that its rays are "strongly charged with positive odyle."

Odyle, he thinks, is the agent in all sorcery, witchcraft, magic, divination, demoniacal possession, &c.

Even love comes of odyle. The arrows of Cupid, according to Dr. Gregory, are nothing but "emanations of odyle." On this subject, he thus discourseth: "Sympathy often produces a strong attraction between two persons who see each other for the first time. Neither of them can explain it, but both feel it, and their love at first sight is no fancy, but a reality. It arises, in part, from a pleasing correspondence between the magnetic influences of the parties, and when this is the case, it is as durable as strong. Nay, it is well known that there are many persons who frequently quarrel after being long together (disturbances of the odyle, we suppose), yet are quite wretched if separated, and infallibly come together (by the force of odylic attraction of course), till a new quarrel again forces them asunder; again to feel miserable apart." What scientific sentimentality! Dr. Gregory will, ere long, be the poet-priest of animal magnetism!

Antipathies, too, come of this busy odyle. Dr. Gregory does not tell us *how*—he only gives us the fact, which we suppose he, or Reichenbach, has demonstrated to his satisfaction, and *therefore* it is a fact. Whether the antipathy be to a person, an animal, or a substance, the odyle somehow causes it.

Professor Gregory thinks that odyle, or magnetic influence, is the cause of numberless wonderful phenomena in animals. He almost resolves all instinct into odyle. After speaking of bird-charming and horse-taming, he says, that "Miss Martineau has also recently published a case, in which she not only magnetized a cow suffering from acute disease, but cured the animal by magnetic treatment." An interesting episode this would make in a Bucolic, illustrative of odylic love; perhaps Professor Gregory will try his hand at this.

The "snail telegraph" is adduced by Professor Gregory as a striking example of the agency of animal magnetism, as the source of sympathy in animals. The account which he gives of it is this: "Every letter has a snail belonging to it in Paris; while in America, each letter has also a snail sympathetic with that of the same letter in Paris; the two snails of each letter having been at some period, and by some process, brought into full sympathy, and then separated and marked. There is, of course, a stock of spare snails for each letter in case of accident; but it is found that these animals will live for a year without food, should that be necessary. When a word is to be spelled in Paris, the snail belonging to the first letter is brought by some galvanic apparatus, not yet fully described, into a state of disturbance, with which his fellow in America sympathizes. But this requires to be ascertained; which is done by approaching in America to all the snails successively a testing apparatus, not described, which, however, contains a snail. On the approach of this, the snail whose fellow in Paris has been acted upon, exhibits some symptom which is not exhibited by any other, and the corresponding letter is noted down. This is done with each letter, and thus the word is finally spelled.

"Now all this may appear at first sight," continues Professor Gregory, "very absurd and ridiculous. I confess (indeed!) it appeared so to me when I first heard of it. But, when I recollected all I had seen of sympathy in man, and all that was known about sympathy in the lower animals; and when I read the account given by M. Allix, a gentleman well versed in science, of the successful experiments at which he had assisted, I perceived that the only difficulty lay in admitting the fact of the extraordinary sympathy of snails, and that this being granted, all the rest was not only possible, but easy." The details of this new "discovery" have not yet been published, although the discoverers, two Frenchmen, "have been for ten years engaged in bringing their discovery into a practical form." But Dr. Gregory seems to think that the facts are well attested, and says, "It will certainly be very remarkable if a snail telegraph should come into action; which, in spite of the proverbial slowness of the animal concerned, should rival in rapidity the electric telegraph, and perhaps it in security; inasmuch as there are no wires to be cut by an enemy, besides being infinitely less costly; since no solid tangible means of communication are required, and all that is needed is the apparatus at either end of the line, and the properly prepared snails."

But there are other wonders to come besides the snail telegraph. The anticipations of Professor Gregory are brilliant, and fill him with enthusiasm. As we have a galvanometer and a photometer, he expects that we shall soon have an odylometer to measure all quantities of odylic force. But this is not all. He expects that we shall, ere long, have "an odylic battery, just as we have a galvanic battery," and says that, "when we shall have thus obtained the power of odylically affecting every man, a vast step will be gained." We agree with him that such discoveries as these "would at once do the work of a century in promoting the progress of odylic science." If the laboratory of the professor could be graced with the odylometer, the odylic battery, and the snail telegraph, what a blaze of odylic light would be concentrated there from the past, the present, and the future! And who could endure it but those whose bodies had been long "bathed in odylic light," and whose minds had been long saturated with odylic belief?

Such are some few of the notions and statements which we find in Professor Gregory's book. As we have read them, we have paused, we know not how often, and asked, Can it be that Dr. Gregory, the Professor of Chemistry in Edinburgh, really believes as he writes? May it not, after all, be a burlesque?

It was no part of our intention to examine critically, and to any extent, the subject of animal magnetism. The folly and falsehood which have been put forth under this name are mixed with so little that is true and valuable that we do not wonder at all that reasonable and scientific men are so little disposed to look into these subjects. There is so little wheat amid the abundance of chaff, that it is not worth the sifting. The time which would be consumed in doing it may be much more advantageously employed in fields of knowledge which yield a much larger and surer return for our labour.

We have seen enough in the exhibitions which have been made, and in the books which have been published, to convince us that the little that is true of all which is included under the name of animal magnetism, is to be attributed solely to certain *nervous conditions induced through mental influence.* The mixture of imposture with these conditions is a very strange mixture, it is true; but it is not an incompatible one. What physician of any experience has not seen occasionally in hysteric patients just this mixture? The prospect of notoriety, and that too among the titled, the rich, and the scientific, to say nothing of pecuniary compensation, suffices to convert many such patients into very skillful clairvoyants.

Sometimes there is no such mixture, but the exhibition is sheer unmixed imposture. And the operator, though he may not be an amateur, but an out and out impostor, is not always able to discern pure imposture from that which is not. We have seen a very celebrated magnetizer thoroughly in doubt whether a roguish boy was really in the so called magnetic state, or was playing a trick upon him. And we have known persons, as a matter of sport, to mingle among the subjects of the psychologist (so called) who, in obedience to his directions, were playing all sorts of antics, because they thought that they could not help doing so, and while they duped the operator, they acted their parts quite as much to the satisfaction of the audience as the dupes themselves.

While the amateur and scientific votaries of this science are for the most part duped by their subjects, we have no doubt that the lecturing exhibitors of animal magnetism, in its various forms, are as arrant a set of impostors as ever duped any community. And yet, whenever one comes along, a large audience is gathered, and among them are many of the intelligent and the influential, and some clergymen, of course, and generally some physicians. The exhibition is at least amusing; and the imposture is so well managed that but few have acuteness enough to detect it, if they wished to do so. The farce of having a committee of wise men to watch the operator is always gone through with as a matter of course, as giving an air of honesty and respectability to the exhibition. But any fair and thorough testing is most scrupulously avoided. We once made a proposition for such a testing to one of the most skillful and respectable of these travelling magnetizers, but though the fairness of the proposition was admitted, he continued with various excuses to delay the examination, till he had gone through with all his public exhibitions; and then he had no time to spare, even at a high compensation which was offered him, because he was in haste to go on, and dupe other communities.

It is worthy of remark that these lecturers seldom, if ever, appear a second time in the same place, however great their success has been. In large cities, it is true, it may be otherwise, because there the material for fresh audiences is abundant. So, too, the career of each lecturer is apt to be a short one—there is a constant succession of them. For the same reason the "science" continually changes its name, and appears with a new phase; and so we have Mesmerism, Animal Magnetism, Pathetism, Electro-Biology, Hypnotism, Psychology, &c. The subjects, too, however famous they become, do not last long, and new ones rise to take their places. And those localities where animal magnetism has made its most signal displays, and astonished and led captive almost the whole community, have in a little time lost all knowledge, all "trace," of the odyle that was there, so that one would suppose that some strange power had utterly banished this agent, though for a time the place was "luminous" from its presence. Perhaps no place in this country has been more famous for the doings of animal magnetism than Providence was some dozen years ago. The odyle was then so abundant there that its "emanations" drew (we suppose by their peculiar attractive power) many pilgrims to the favoured spot from distant places. Among them was Colonel Stone, who published his experience in a pamphlet, which was for a time very famous. But short was this brilliant display of odyle there. The reason is probably to be found in the fact, which Professor Gregory comments upon in his work, that odyle has, like electricity, a strong tendency to an equilibrium, of course preventing any excessive accumulation of it from continuing any length of time. Colonel Stone's pamphlet, M. Poyen the operator, and Miss Bracket

the subject, soon ceased to be "luminous," and went into the shades of forgetfulness; and the people of Providence are to this day in entire darkness on the subject of animal magnetism. Their "odylic light" is not only in total, but as it seems in final eclipse.

Professor Gregory makes great complaint, again and again, that scientific men, and especially physicians, have neglected animal magnetism, and throws out the usual threadbare allusions to Galileo, Copernicus, Harvey, Jenner, &c. This might be expected of quacks and travelling exhibitors—they have the excuse of ignorance. But a professor in Edinburgh must know better—he must know that new things are not treated now as they were in the dark times of Galileo and Copernicus, when antiquity bore such sway; and that the discoveries of Harvey and Jenner, though they met with opposition, were in the course of a few years welcomed by almost the whole body of the medical profession, and, therefore, furnish no parallel to the steady rejection with which animal magnetism, and its associate phantasm homœopathy, have met from them for more than half a century.

Dr. Gregory begins his book with a laboured consideration of the various objections which have been brought against animal magnetism. He manages this quite dexterously, misrepresenting some objections, trumping up some that were never adduced by intelligent and scientific men, and avoiding continually the real points at issue in the case. The main, the grand objection he does not state, nor even allude to it with any distinctness—viz., *that the alleged facts are most of them not proved.* Though the believers in this "science" make great boast of their facts, they are exceedingly loose in regard to the evidence upon which their facts rest. The main points are often wholly neglected. A single example will suffice, though a multitude might be cited. It is a case of which Colonel Stone makes great parade in his pamphlet. He gave the clairvoyant a sealed packet with a very odd sentence in it, a part of which she read, as the colonel supposed, without opening it. But how did he know that she did not open it? Simply because it was a day or two after returned to him apparently in the same state as he gave it to her. This he considered to be good proof. But we do not—it is defective in its most essential point. If she could read the packet without opening it, why did she not do it in Colonel Stone's presence? There is not a particle of evidence offered to show that any one saw her do it. The true test was an easy one, but it was not applied. There is such a thing as skill in opening seals and replacing them so that it is not easy to detect it. And until we have the proof that this was not done, we are not warranted in believing that the clairvoyant read through the envelope. Another similar case is given in the colonel's pamphlet, against which the same objection lies.

Similar defects in the evidence upon which animal magnetizers ask for our belief are continually presenting themselves. And they seem utterly blind to the proofs of imposture on the part of their subjects. The occasional detection of them by others of less credulity does not seem to open their eyes in the least. The Okeys, that duped Professor Elliotson and a formidable troup of scientific and learned men in London, were at length proved beyond all doubt to be impostors—but the believers believed still. And so of other cases. Those who are once thoroughly possessed with the spirit of delusion are seldom converted from their errors.

It is curious to observe how belief in one absurdity prepares for belief in others. A propensity is created which manifests itself whenever the occasion presents. The possession is ordinarily such that the spirit of delusion may well be termed *legion.* Most various and incongruous are the beliefs which it

generates. It is eager for all novelties. For this reason we had not a doubt, after reading a little way in Dr. Gregory's book, that he was a believer in homœopathy, and we found in the latter part of it that it really was so. And we presume that Professor Henderson, the great representative of homœopathy in Edinburgh, like his master Hahnemann, is a full convert to animal magnetism—if it be otherwise, it is an unwonted phenomenon. The same transgression of the rules of evidence which is required for the belief of the one is required for the belief of the other.

We know nothing of Dr. Gregory's standing as a professor of chemistry. Chemistry is so exact a science that the rules of evidence which apply to it are very simple. And Dr. Gregory does not seem to understand that, when he passes from chemistry to the examination of the phenomena of life, and spirit, and disease, mingled and complicated as they are, vastly more caution is needed in order to ascertain the truth and avoid error. One thing is certain, that Professor Gregory's dabbling with animal magnetism will not improve him as a teacher of chemistry. The moment that anything complicated shall occur—anything in which credulity or a disposition to theorize will be apt to lead astray—Dr. Gregory will be led into error. It cannot be otherwise with one who expects ere long to see in his laboratory an odylometer, an odylic battery, and perhaps a snail telegraph.

As to the complaint made by Professor Gregory, that physicians and scientific men generally refuse to look into animal magnetism, we remark that, *in every case where they have examined it with any thoroughness, most of its pretensions have been proved to be false.* And this leads us also to remark, in conclusion, that the duty of all intelligent men clearly is, either to have nothing to do with it, or to test its merits according to the strict rules of evidence. The half-way examinations which they have bestowed upon it, as exhibited by travelling lecturers, have only given currency to this delusion, and through this to others; and thus respectability, and honesty, and even science have been made to favour tendencies, which, by encouraging loose habits of reasoning and belief, are undermining the very foundations of truth. In this way, physicians have encouraged that loose and theorizing observation which, more than any other cause, has retarded the progress of medical science; and clergymen have fostered errors which are cutting loose many minds from all reason, and of course from all rational religion. W. H.

BIBLIOGRAPHICAL NOTICES.

ART. XII.—*Surgical Anatomy.* By JOSEPH MACLISE, Surgeon. (With coloured plates.) Part IV. Philadelphia: Blanchard and Lea, 1851.

WE are very glad to see that this excellent work approaches so nearly to its conclusion. "The four parts now issued contain sixty-two plates, being the number originally promised and expected to complete the work, when the first part was published. The increased number of plates will, however, render a fifth part necessary, which will shortly be ready. Price only one dollar."

Our readers will, perhaps, recollect that the third part of this book, noticed in a former number of the Journal, was taken up with the illustration of Hernia, the particulars of which were very fully exposed. We shall, in the course of the following notice, set forth the topics which the present fasciculus is intended to exhibit.

Plate forty-seven, the first of this division, represents "the Surgical Dissection of the principal Blood-vessels and Nerves of the Iliac and Femoral regions." The author remarks, "The main artery of the lower limb is usually described as divisible into parts, according to the regions which it traverses. But, as in examining any one of these parts, irrespective of the others, many facts of chief surgical importance are thereby obscured and overlooked, I propose to consider the vessel *as a whole*, continuous from the aorta to where it enters the popliteal space"—p. 105. And this he does without neglecting the relational anatomy of each of the ordinary artificial divisions of the vessel. This we consider one of the important characteristics of Mr. Maclise's treatise; that he looks upon and demonstrates the anatomy of each region, and of each prominent element of each region, as part of the whole organism, having with it inseparable ties, but more particularly connected with some great segment of the body. In the chapter explanatory of the plate, the mode of origin of the iliac vessels is indicated, together with the point on the skeleton which may serve as a guide to the seat of the division of the aorta; then the course of the vessels is traced, and their connections with the other component parts of the iliac and femoral regions are described, until they leave this part of the lower limb. The best points for securing the artery in the different sections are also commented on.

Plates forty-eight and forty-nine illustrate "the Relational Anatomy of the Male Pelvic Organs." And in connection with them, the relation of the organs of the abdomen to those of the pelvis is referred to in the different acts to which both are subject under the influence of the thoracic and abdominal muscles. The situation, connections, form, dimensions, &c., of the *urinary bladder*, under varying circumstances; the disposition of the *peritoneum* with reference to this organ; the important parts situated about the neck of the bladder and the rectum; the vascular peculiarities of the pelvic cavity—these are the subjects of the comments attached to the plates.

"The Surgical Dissection of the Superficial Structures of the Male Perineum" is exhibited in plates fifty and fifty-one. These plates present five different views of this part. The chief topics which the author elucidates in his explanation are, the continuity of the superficial fascia of the abdomen and the perineum, and the mode in which this important tissue is distributed over the lower part of the belly, the scrotum, and the perineum, so that its great function, in a surgical point of view, is effected, viz., the limitation of urinary infiltration; and the constitution of the perineum beneath this fascia, its component structures, its boundaries, and its relations to the different organs contained in the pelvis. And to give the remarks a practical bearing, the operations implicating these parts are glanced at. This is an exceedingly interesting and valuable chapter. It forms an admirable introduction to that which

succeeds it, on the surgical dissection of the deep structures of the male perineum, and the lateral operation of lithotomy, elucidated by four drawings.

The commentary on plates fifty-four, fifty-five, and fifty-six refers to the surgical dissection of the male bladder and urethra, and comprises an account of the lateral and bilateral operations of lithotomy. To this chapter are attached eight lithographs. In this comparative view of the two operations for the removal of stone from the bladder, the author exhibits the incisions made in each, and contrasts them with reference to their respective merits, as avoiding the dangers to which each is exposed, and as offering facilities for the extraction of the calculus. In addition to this, some excellent views are given of the course of the urethra, and the obstacles to the introduction of the catheter.

Plates fifty-seven and fifty-eight and the associated remarks are explanatory of the congenital and pathological deformities of the prepuce and urethra—as well as of stricture and mechanical obstructions of this canal. For the illustration of these, twenty-six views of the parts are presented. These drawings are of value, inasmuch as they represent, as we gather from the text, *bonâ fide* cases of congenital and accidental derangement.

In plates fifty-nine and sixty, comprising twenty-five separate drawings, we have exposed the various forms and positions of strictures, and other obstructions of the urethra, false passages, and enlargements and deformities of the prostate. The subject of deformities of the prostate, and the consequent distortions and obstructions of the prostatic portion of the urethra, is contained in the concluding chapter, and is further illustrated by twenty drawings in plates sixty-one and sixty-two. Thus, it will be perceived, we are in the last six plates furnished with a valuable series of prints (seventy-one in number), exhibiting the ordinary and the unusual causes which interfere with healthy urination, and many of the bad effects resulting from careless efforts to relieve the difficulty.

In our notice of one of the preceding parts of this valuable publication, we took occasion to allude to the philosophical analogies which Mr. Maclise pointed out as traceable between organs and parts apparently dissimilar. The author is evidently fond of studying anatomy as a science embodying profound laws of harmony and beauty, and of endeavouring to unravel these. But, however praiseworthy and deserving of encouragement this may be, and however much it elevates the study of anatomy above the mere grasping after isolated facts, there is certainly the same danger of drawing false analogies and inferences here, as in every other similar investigation; in mineralogy, geology, or botany, for example. And in the last chapter, we think that Mr. Maclise has stumbled upon this very difficulty. He says, p. 133, "The prostate is peculiar to the male body; the uterus to the female. With the exception of these two organs, there is not another which appears in the one sex, but has its analogue in the other; and thus these two organs, the prostate and the uterus, appear, by exclusion of the rest, to approach the test of comparison by which their analogy becomes as fully manifested as that between the two quantities $a-b$, and $a+b$; the only difference which exists depends upon the subtraction or addition of the quantity, b. The difference between a prostate and a uterus is simply one of quantity, such as we see existing between the male and female breast. The prostate is to the uterus absolutely what a rudimentary organ is to its fully developed analogue," &c. He also says, "This body is not a gland any more than is the uterus;" "the prostate has no function proper to itself *per se*;" "in texture the prostate is similar to an unimpregnated uterus. In form, it is, like the uterus, symmetrical. In position, it corresponds to the uterus. The prostate has no ducts proper to itself. Those ducts which are said to belong to it (prostatic ducts) are merely mucous cells, similar to those in other parts of the urethral lining membrane," &c. We have always regarded this hypothesis as a sort of *transcendentalized transcendentalism*. The optics and the sensorium which can see as much resemblance between a prostate gland and a uterus as between a male and female breast, or a vertebra of the lumbar region and one of the bones of the coccyx, must be as far removed in perceptive powers above those of Swedenborg and his most favoured disciples, as heaven is high above the earth. Mr. Maclise's assertion that the prostate is not a gland, and that it

has no ducts, may be met by reference to the dissections of this body by Henle, Huschke, Müller, Quecket, Jones, and others, who describe its follicular structure, and the little ducts which issue from these follicles, lined by a continuous epithelial membrane, and containing the same fluid. Its function is not positively known, it is true; but the suggestion of Mr. Adams (Vid. *Cyclop. Anat. and Physiol.*, part 31, p. 154), that the acidity of its secreted fluid may serve to prevent the tendency to inspissation of the alkaline spermatic secretion, and thus to favour the ejection of the latter, may be the clue to its real purpose in the economy. And if an analogue to the uterus be wanting to render the male complete in Mr. Maclise's view, surely the "*utriculus prostaticus*" offers a much more striking analogy to that organ, in its shape, and in its position between the two ejaculatory ducts, which, though they do not generally open into it, do occasionally communicate with its interior, as is said by some anatomists. Huschke, who has paid considerable attention to this curious anatomical question, draws the following inferences from his observations: 1st. That the "utriculus" is a male uterus. 2d. That it is originally a receptacle of spermatic fluid. 3d. That its development bears an inverse proportion to that of the true seminal vesicles and the prostate gland, perhaps even in man. 4th. That it is at a late period a mere rudiment of fœtal life, divested of all importance. (Huschke, *Encyclopédie Anatomique*, vol. v. p. 382.)

But this is a mere wandering of the imagination on the part of Mr. Maclise, and does not in the least detract from the merits of his most valuable contribution to surgical science. We will not quarrel with him on this account; "aliquando dormitat bonus Homerus." F. W. S.

ART. XIII.—*Urinary Deposits; their Diagnosis, Pathology, and Therapeutical Indications.* By GOLDING BIRD, A. M., M. D., F. R. S., F. L. S. Assistant Physician, and Lecturer on Materia Medica and Therapeutics, at Guy's Hospital, &c. &c. &c. Second American, from the third and enlarged London edition. Philadelphia: Blanchard and Lea, 1851.

THIS work of Dr. Bird has, through its former editions, acquired a celebrity which places it among the standard publications of the day; and would require but the announcement only of a new edition, were it not that it has received, at the author's hands, so complete a revision as to render it quite as much a new work as many which are issued from the press under this title. After the first thirty pages, it will be found, on comparing this with the former editions, that the changes and additions are so frequent as to preclude any design of their enumeration. Every two, or more pages, there appear new wood-cuts, additional observations, and the incorporation of later information of an authentic character, and re-modification of former statements in correspondence with the present condition of our knowledge in this department; presenting, in a succinct form, a complete view of the state of investigation in this speciality of medical science. The existence in the urine of creatine, creatinine, and other substances found in flesh; of fatty matters; of casein during lactation, &c.; variation in the appearances of this secretion in colour from excess of purpurine, in consistence from urate of ammonia, in quantity sufficient to gelatinize on cooling; alteration in composition from the nature of ingesta, and period of taking the food, and from functional and organic disease in the different organs, together with the pathological indications to be derived from this source, are some of the points which have engaged the author's attention. Therapeutic indications in the varied conditions of the urine are also noticed, and the effects of remedies: as colchicum on the secretion of uric acid, and the oxalic diathesis; borax, phosphate of soda and ammonia, &c., in retaining uric acid in solution, &c. Although this notice comprises, in a very general manner, but a portion of the new matter introduced, it suffices to present an idea of the extent of revision to which the work has been subjected. The American edition has been issued in form and size to correspond with the allied works proceeding from the same publishers, and is well suited to the convenience of the student. R. B.

ART. XIV.—*Principles of Physiology, General and Comparative.* By WILLIAM B. CARPENTER, M. D., F. R. S., F. G. S., etc. etc. etc. Third edition. With three hundred and twenty-one wood engravings. Philadelphia: Blanchard and Lea, 1851. 8vo. pp. 1098.

THE necessity of an acquaintance with the physiology of the human organism as a guide in the investigation of its various pathological conditions is now universally admitted. Every means, therefore, calculated to facilitate the study of the actions of living organized matter, from the simplest to the most complicated forms in which it presents itself, with the forces by which these several actions are produced, governed, and modified, and the reciprocal relationship they hold to each other, becomes of importance. One of the most efficient aids to this study is unquestionably comparative physiology. Commencing with an investigation of the vital forces and functions exhibited in the lowest order of living beings, and, as we ascend upwards in the scale, tracing the modifications in the structure and vital actions, as the organism becomes more and more complex, and new forces are brought into operation, and new functions are developed, we are enabled, in some measure, to study the physiology of the several vital forces and functions separately, and are thus better prepared to understand the operation of these forces, and the true character of these functions in the complicated organism of the higher class of animals and man.

The attempt to analyze the different functions of living organized matter, and the forces by which they are maintained and governed, by venesection and other experiments performed on living animals, cannot lead in every instance to satisfactory conclusions, from our inability to determine whether the phenomena produced are not due more to the violence inflicted by the experiment than to the isolation of parts intended to be affected by it. Although the facts derived from comparative anatomy may not be sufficient to do away entirely with the necessity for experimenting upon living animals, still so far as these facts go they furnish conclusions of a more positive and satisfactory character. It is from these facts alone that we can expect to derive any insight into the supposed correlation of the several vital forces, and of these with the purely physical forces operating in the inorganic world; and as the establishment of such a correlation would lead us to a clearer conception of vitality than we have yet attained, the study of comparative physiology becomes, even in this particular, one of primary importance. In whatever point of view, in fact, the subject is viewed, whether as an interesting branch merely of natural philosophy, or as a guide to the more intricate questions connected with the physiology of man, the study of comparative physiology becomes a desirable, if it be not an essential branch of medical education.

The work of Dr. Carpenter obviates every objection that might be advanced to entering upon this study from the want of a clear and comprehensive treatise embracing a correct view of the existing state of knowledge in reference as well to general as to comparative physiology. Availing himself of the best and most recent information he could procure upon each department of the subject, and devoting considerable time and attention to the verification of the statements of other observers, especially on points under dispute, he has orderly and methodically digested and arranged the materials thus obtained, as well as a large amount drawn from his own original inquiries, so as to place the knowledge of many within the reach of any one who may feel desirous of acquiring it with no further trouble than the careful perusal of a few hundred pages, the production of which has cost the author much and prolonged labour.

Dr. Carpenter has succeeded so well in embodying in the present treatise the general aspect of the science of which he treats, and in teaching the leading facts embraced in it, in a style so plain and withal so explicit, that many who commence the volume without any design of studying it thoroughly, will be allured onward until they shall have mastered the whole of its interesting contents.

Though professedly the third edition of "The Principles of General and Comparative Physiology," the treatise before us is to be viewed in some measure

as a new work. Out of the 1080 pages of text, not above 150, or less than one-seventh, belong to the previous edition; this fact evinces the desire of the author to spare no pains, in order to render the volume a faithful exposition of the present state of physiological science.

To present an analysis of so voluminous a work as the present, in which so many subjects of deep interest are treated of, and so many intricate questions, connected with the biotic forces and actions, are discussed, would be impracticable; and to enter into a criticism of the several doctrines inculcated would necessarily extend our notice to an unreasonable extent. Notwithstanding, as already remarked, the author has, in the selection of his materials, endeavoured to avail himself of the best and most recent information he could procure, it is scarcely to be expected, as he himself remarks, that he should be equally well informed upon every point, and those who have followed particular departments into detail, will doubtless find scope for criticism in what they may regard as deficiencies or even errors. Dr. Carpenter desires that his work may be estimated by its general merits; and rather by what it *does* than by what it does not contain. It would have been, he adds, far easier to expand it by *mere compilation* to twice its present dimensions, than it has been found to compress the collected materials within the space they even now occupy.

It is to be regretted that Dr. Carpenter should be allowed to anticipate not the slightest pecuniary recompense for the time and labour he has bestowed upon the production of the valuable treatise before us, but, on the contrary, a certain loss, involved in the relinquishment of other literary engagements of a remunerative character. We are assured that the sale of the entire edition will not do more than remunerate his liberal publisher for the very large outlay which he has incurred in bringing out the work, and more especially for the beautiful series of illustrations with which it is embellished. We had hoped that, inasmuch as the work of Dr. Carpenter is the only systematic treatise, embracing the principles of general and comparative physiology, within the reach of the English student, this, in connection with its intrinsic value, would insure the sale of a sufficient number of copies and at a price to remunerate both publisher and author.

D. F. C.

Art. XV.—*Transactions of the Medical Society of the State of Pennsylvania at its Annual Session, held in the city of Philadelphia*, May, 1851. Vol. I. Published by the Society. 8vo. pp. 128.

In the present volume of their Transactions, the State Medical Society of Pennsylvania give an earnest of their zealous co-operation with the societies of the other States in perfecting the organization of the medical profession throughout the Union, as well for the faithful administration of a correct ethical discipline among its members, as for the enlargement of the common stock of professional knowledge, by a careful study of the endemic diseases of each section of the country, in connection with its medical topography.

The session of 1851 was unquestionably a most interesting one, not so much from the importance of the business transacted, as from a good example being given in the reports received from a portion of the counties, which, it is believed, will be followed up at each succeeding session, until the materials shall be accumulated for a complete history of the medical topography and prevailing diseases of the State.

The reports embraced in the volume before us, though all valuable, differ considerably in their extent, and in the amount of positive observations upon which they are founded. Some can be considered only as outlines to be filled up, hereafter, by the results of further and more extended investigation; others, however, especially that on the topography and diseases of Berks County, are drawn up with great ability, and in their manner and matter may serve as models for future reports from the other counties.

The character of all of the reports before us is sufficiently encouraging, and, under all circumstances, equal to what we had a right to anticipate. It is only recently that any attempt has been made to organize the profession throughout Pennsylvania, and by concentrating the labours of the numerous talented physicians scattered over the interior of the State, in rural and often sparsely populated districts, to render available, for the instruction of all, the facts and deductions collected by each within his own field of observation. Many, immersed in the engrossing duties of a wide range of country practice, have neither the time nor inclination to draw up a formal report, but are able, nevertheless, to contribute valuable materials; and there is no section of the State in which a committee of medical men cannot be found fully capable, and no doubt willing, to arrange these materials in such a form for presentation to the State Society as shall do credit to it as well as to themselves.

Among the more important subjects that occupied the attention of the Society at the session, the record of the transactions of which is before us, are a registration of births, marriages, and deaths, throughout the State; the expediency of establishing a pathological cabinet; the gratuitous vaccination of the poor in every county of the State; and the protective powers of vaccination.

The vital statistics to be derived from a careful and continuous registration of the births, marriages, and deaths, which occur in the midst of any community, are essential not merely to settle questions relating to population, but to determine, by positive data, the proportion of the natural increase and mortality in different localities, and among the different classes of the community, with the view of ascertaining their comparative salubrity, the causes of any discrepancy in this respect, which may be found to exist between them, and the means by which such discrepancy may be obviated. By vital statistics, alone, can be determined the value of life in the different sections of a country, and in the different ages, occupations, and modes of living of its population; and they can alone lead us to the discovery of the measures necessary to equalize and augment the value of life in all. These are among the leading benefits to be anticipated from an accurate system of registration, and we are pleased to find the medical profession in Pennsylvania alive to the importance of this measure, and zealously engaged in obtaining the passage of a law by the Legislature of the State to carry it into effect.

Although there are some defects in the bill relative to registration passed at the last session of the Pennsylvania Legislature, and printed as an appendix to the present volume, still it is to be regretted that the Governor should not have seen proper to give it his approval. A registration being once established, there would be little difficulty in obtaining the amendments necessary to secure a more simple and efficient system.

In withholding his name from the bill alluded to, the Governor merely exercises a power secured to him by the constitution; we have no right, therefore, to complain, but it is to be hoped that the reasons he shall furnish to the legislature, at its ensuing session, will be of a character fully sufficient to warrant the jeoparding of so important a measure.

The report of the committee on a pathological cabinet deserves the serious consideration of all the constituents of the State Society. Valuable specimens of morbid anatomy may be collected by every physician in general practice; but this is seldom done, few physicians out of our large cities having the leisure properly to prepare them for examination and preservation, or the conveniences for keeping them for future reference. A few isolated specimens, also, are but of little value to the pathological student, compared to an extensive and well-arranged cabinet. The liberal proposition made by the College of Physicians, if acted upon by the physicians of Pennsylvania, would, in a few years, place within their reach a cabinet in which all the leading forms of morbid structure could be studied with profit.

The gratuitous vaccination of the poor throughout the commonwealth is a measure in which every citizen is deeply interested. Even if the protection of the indigent classes from the suffering, the mortality, or the deformity, incident to small-pox, and the saving of the loss entailed upon the community by the death or decrepitude of vast numbers of its labouring population, and the expense

incurred for their support when sick or disabled, would seem to be sufficient considerations to insure the measure being carried into effect; but when we consider that, with a large portion of the population liable, upon the occurrence of an epidemic of small-pox or its accidental introduction by an infected person or clothing, to be attacked with that disease in its worst form, even many of those who, under ordinary circumstances, are fully protected by vaccination, are in danger of suffering, to a certain extent, from exposure to an air thus saturated with the poisonous miasm given off from the bodies of the sick, while their offspring, unless they could be conveniently and effectually vaccinated at the moment of birth, are liable to fall victims to the prevailing disease.

We are glad that the State Society has taken this subject in hand, and can entertain no fear that their appeal to the legislature in reference to it will be ineffectual.

The novel and startling facts and propositions, announced by Dr. Gregory of London, in relation to vaccine, small-pox, revaccination, and inoculation, and referred to in the report of Dr. Jackson made to this session of the State Society, are well deserving of a close investigation. If it be true that inoculation in persons over fifteen years of age, who had been previously vaccinated, produces a new form of papular disease, which is not contagious, is unattended with danger, and gives protection against small-pox for life, we have a discovery equal, if not superior, in importance to that of Jenner. If the correctness of this statement shall be established by a careful series of experiments, we shall have then a means of protection against small-pox more uniformly certain than vaccination, and disarmed of all the danger attendant upon variolous inoculation.

The State Society has very properly appointed a committee to investigate the accuracy of these conclusions of Dr. Gregory, in which he is said to be sustained by M. Cazenave, the celebrated dermatologist of Paris. It is to be hoped that the committee will not neglect the task confided to them; the means for its accomplishment are within their reach, and the medical profession throughout the State will look with anxious expectation for their report. D. F. C.

Art. XVI.—*History of Medical Education and Institutions in the United States, from the first Settlement of the British Colonies to the year* 1850; *with a chapter on the Present Condition and Wants of the Profession, and the Means necessary for supplying these Wants, and elevating the Character, and extending the Usefulness of the Whole Profession.* By N. S. Davis, M. D., Professor of Principles and Practice of Medicine in Rush Medical College, etc. etc. Chicago, 1851: 12mo. pp. 228.

In undertaking the office of historian of medical education and medical institutions in the United States, Dr. Davis has, evidently, been prompted by the best of motives. Unfortunately, however, he has mistaken his vocation. We admire the love he has evinced for his profession, and give him credit for the efforts he has made to elevate its character and extend its usefulness, by directing due attention to the moral character and proper education of those who would enrol themselves among its members. Of his honesty of purpose, no one has a right to doubt; and of his untiring zeal in the cause of professional reform we have all been witnesses. Still we must withhold from him our meed of praise when he claims it as the delineator of the domestic history of the medical profession; the means it has provided in this country for the instruction of its novitiates; and the institutions it has there organized, where its mission of good may be displayed, and its members made familiar with disease and the application of the means for its prevention and its cure.

There can be no doubt that a careful review of the condition of the medical profession and of medical education in these United States, from their first settlement to the present period, would be both interesting and instructive. In

such a review, attention should be paid to the character and professional standing of the physicians with which the country was supplied during the several periods of its colonial history, as well as subsequently to its organization as an independent nation; and an inquiry should be instituted into the influence which, previously to the establishment of regular medical schools, and for some time after, the leading physicians exercised, as private instructors, upon the character and condition of our profession on this side of the Atlantic. Pains should also be taken to trace the opportunities that were successively afforded for medical education; these at first, it is true, will be found to have been but few, casual, and imperfect, but augmenting in number, permanence, and importance, as the population increased, and medical services became more in demand, and were better compensated. By a candid examination of the state of medical education in this country, compared with the condition and wants of the people, we shall not find so much cause of complaint in regard to the actual neglect of professional instruction, and the ignorance and deficiency of skill in the medical men, during the period of our colonial subjection or in the early days of our independent existence. The fault has not been that the means for medical instruction adapted to the existing condition of the people, and in accordance with the former restricted character of medical science, were not afforded in this country at a sufficiently early period; but, on the one hand, that the means for professional education have not kept pace with the progress of our science and the rapid development that has been given to every department of human knowledge calculated to lead us to a knowledge of the etiology, the pathology, the prevention, and the cure of disease; and, on the other, that due care has not been taken to demand from all who would assume the duties and responsibilities of a practitioner of medicine, adequate moral and educational qualifications.

In the work before us, Dr. Davis professes to have embodied "all the facts in regard to the educational history of the medical profession in this country; and by a careful tracing of present evils and defects to their origin," to have furnished that information without which "no member of the profession can be prepared to act wisely his part in the great progressive movements of the age." He has unquestionably brought together much useful information in reference to the history of our profession, in this country, during former years, not certainly all that he might have collected by a little more research; nor has he always presented what he has collected with all the fullness and precision which are desirable. Nor has he always made the best use of his materials, by so arranging them as to present a broad and comprehensive view of the condition of the medical profession of our country, at different periods from its earliest settlement to the present.

Many of the important contributions to medical knowledge and literature, for which we are indebted to our older physicians, are correctly indicated in the present work; others, however, of equal value are left unnoticed. Dr. Davis evinces no great familiarity with the early history of American medical literature, having recorded as an entire blank a period during which many works of distinguished merit were produced, the greater portion of which are still received as authorities in reference to the particular subjects of which they treat.

In the closing chapter, are presented many important truths connected with the present condition and wants of the profession: truths which strongly press themselves upon our attention. We cannot shut our eyes to the fact that for a series of years the medical profession throughout our country has been rapidly deteriorating; that the qualifications of a majority of those admitted into its ranks are manifestly deficient; and that, in consequence, it has lost that high rank in public estimation which it is essential it should maintain to enable its members to fulfil successfully their important and responsible duties. It is unquestionably true that physicians have entailed much of the evil, under which they labour, upon themselves. And it will continue to be felt so long as private teachers will receive into their office, as medical pupils, individuals deficient in sufficient mental capacity, preliminary education, and moral fitness

to acquire a proper knowledge of the healing art, or to practice it with honor to themselves and benefit to their patients.

While there exists, in almost every State, a facility for the rapid multiplication of schools, with irresponsible faculties; and while the office of medical teacher is permitted to be assumed merely as a source of income by those who are unwilling to abide the slow acquisition of professional employment and its legitimate emoluments, it is impossible to expect that medical teaching will not be prostituted for the sake of gain, and that imperfectly educated and incompetent persons will not be graduated as physicians, to crowd the profession, lower it in the esteem of the public, and discourage from entering into its ranks such as can alone confer credit upon it by a conscientious and efficient discharge of its duties. What is the best remedy for these evils, we are not prepared to decide. Perhaps the one proposed by Dr. Davis might succeed, could it be carried into full effect. But until the members of the profession generally shall be brought to see that their true interests will be best promoted by excluding from among them all such as are not properly qualified to assume the duties and responsibilities of physicians; until they shall become united among themselves, and prepared to decide for themselves, without reference to the pecuniary interests or selfish rivalship of medical schools, what shall be the qualifications of those whom they are alone willing to recognize as regular practitioners of medicine, we fear the evil will rather increase than diminish. Even though a law were passed by every State separating the right of teaching from that of licensing to practice, and conferring the latter upon an independent board of examiners, the evil could not be remedied, but incompetent persons would still be admitted to disgrace the medical profession.

Fifteen years ago an excellent law was passed by the legislature of this State—the same law which Dr. Davis erroneously states was rejected by that body—which, had it been fully carried out by those who were its original projectors, might have been made the basis of an important reform in medical teaching; by giving to the student all the advantages to be derived from the instructions of the best teachers in the different branches of medical science our country could supply; and of an essential reform in the mode of conferring the diploma, which should be the passport to practice, by making it the positive testimonial of their qualifications, as determined by an independent and disinterested board of examiners, responsible for their acts to the great body of the profession throughout Pennsylvania. But, unfortunately, the temptations of ease, power, and emolument, held forth by the professorial chairs of our medical schools, caused the zeal of most of the early friends of this law to cool; and it has, in consequence, remained, until now, a dead letter on the statute-book of the State.

D. F. C.

Art. XVII.—*The Laws of Health, in relation to Mind and Body: A Series of Letters from an Old Practitioner to a Parent.* By Lionel John Beale, M. R. C. S. Philadelphia: Blanchard and Lea. 12mo. pp. 295.

In these letters will be found a very good summary of the laws of health; the importance of a knowledge of which to every individual who desires to enjoy to the uttermost, and to the latest possible period of human existence, the exercise of his physical and mental powers—to every one who would avoid the pangs of disease and premature decay, and preserve unimpaired the inestimable blessing of a sound mind in a healthy body—is enforced and illustrated in a manner well calculated to interest and instruct the popular reader.

It is unquestionably true, that "such books as the present cannot be too numerous, while the laws of health are so grievously disregarded," not only by parents, who, in the proper or improper training of their offspring "from birth, through childhood, and to the eve of man's estate," have it in their power to bestow upon them a life of sickness and imbecility, or one of health, with phy-

sical, and moral, and intellectual vigour, but by nearly all persons in reference to themselves. The mass of mankind act as though all that relates to their organic well-being were unworthy their consideration. Many, indeed, would seem to imagine that a good constitution is an accidental inheritance, that health and disease are the mere offspring of chance, and that man can no more secure the one or avoid the latter, by attention to diet and regimen, to action and rest, to the material and amount of clothing, to the condition of the air he breathes and to the due exercise of his moral and intellectual powers, than he can, "by taking thought, add one cubit to his stature."

"That the body and the mind may be so trained as to resist disease altogether would be too bold an assertion, but it is certainly true of a vast number of the diseases which afflict our race." The daily duties of the medical practitioner bring to his notice many lamentable cases, where a small degree of knowledge of the laws of health would have most certainly prevented serious evils. Even those disorders which come upon the community suddenly from some unknown change in the constitution of the atmosphere that we can neither detect nor prevent, are less liable to attack, or, when they do attack, are ordinarily less severe in those who are guided by the laws of health.

In every point of view a careful study of these laws is important to all. It is upon a correct knowledge of them alone that must be based all sanitary reforms of a public character, whether in the construction, heating, and ventilation of buildings, the drainage and cleansing of cities, the discipline of schools, the regulation of labour in factories, and in the location and management of cemeteries for the dead.

All the bearings of the laws of health may not perhaps be so fully pointed out in the present work, or so fully elucidated, that it shall supersede the necessity of a more voluminous and complete treatise on the subject; still it is one well calculated to extend a knowledge of those laws—a knowledge in which every one is interested, inasmuch as upon a "due observance of them the value of life depends." D. F. C.

ART. XVIII.—*The Outlines of General Pathology.* By M. L. LINTON, M. D., Professor of the Theory and Practice of Medicine in the Medical Department of the St. Louis University. St. Louis, 1851: 8vo. pp. 205.

WE have seldom met with a medical work of so little pretension as this of Dr. Linton possessing the same amount of solid merit, and capable of interesting and instructing the reader to an equal extent. So plain, so simple, and so consistent are the general principles of pathology it inculcates; so seemingly in accordance are they with what we know of the physiology of man, and with the leading facts deduced from clinical observation and pathological anatomy; that they cannot fail to receive a favourable reception on the part of the medical profession. Even though upon more close investigation all the positions assumed by the author should not be found tenable, and in the complex organism of man it should be shown that other elements of disease may be engendered than those he has enumerated, still, in the present condition of medical knowledge, the outlines of general pathology of Dr. Linton will bear a very favourable comparison with any of the systems which are now credited as authorities. They are more simple and consistent than most of these, and are certainly, upon the whole, more truthful than some even of the more popular. We speak of these outlines, of course, only so far as they profess to teach the leading doctrines of disease, explanatory of its nature, elements, causes, and effects. As a system of general pathology embracing all the facts bearing upon the subject that have been accumulated and verified by the observations of the entire profession, to which character, however, they make no pretension, they unquestionably fall very short of numerous well-known treatises. It is as a faithful exponent of the general laws by which these facts are to be interpreted, alone, that the outlines of Dr. Linton can claim any merit.

There is no doubt that, upon a close criticism of each of the positions assumed by the author, we should find cause to question the entire accuracy of some few of them. We had in fact marked one or two for comment, but when we had gone through the entire work we were so much gratified with it, as a whole, that we felt disinclined to present objections to any portion of it, especially to such as involved no point upon which a difference of opinion might not exist without affecting the correctness of the general doctrines inculcated.

We strongly recommend the work to the attention of our readers, no one of whom, we are convinced, will regret the time devoted to its attentive perusal.

D. F. C.

Art. XIX.—*Lectures on Eruptive Fevers, as now in the Course of Delivery at St. Thomas's Hospital, in London.* By George Gregory, M. D., Fellow of the Royal College of Physicians of London; Physician to the Small-pox and Vaccination Hospital at Highgate; Corresponding Member of the National Institute of Washington, etc. First American edition, with numerous additions and amendments by the author, comprising his latest views. With Notes and an Appendix, embodying the most recent opinions on Exanthematic Pathology; and also Statistical Tables and Coloured Plates. By H. D. Bulkley, M. D., Physician to the New York Hospital, Fellow of the New York College of Physicians and Surgeons, etc. etc. New York, 1851: S. S. and W. Wood. 8vo. pp. 376.

These lectures present a very full and able account of the pathology and therapeutical management of a class of diseases which, from the frequency of their occurrence, and the fearful mortality attendant upon several of them, particularly interest every physician. The high professional standing and extensive experience of Dr. Gregory give to his opinions a degree of authority which, in connection with the character of the subjects discussed, renders the volume before us a highly important addition to our medical literature. It is calculated certainly to exert a powerful influence upon medical opinion and practice, in reference to the febrile exanthemata; and from the general accuracy of the views advanced by the author, we are happy to say that this influence will be a favourable one. Although we cannot agree with him in his opinions as to the uncertain and temporary character of the protection afforded by vaccination against the occurrence of small-pox, still, with the exception of this and a few other points of minor importance, his pathological and therapeutical teachings are, in the main, sound and judicious, and correspond with the general observations and experience of American practitioners.

Dr. Gregory divides the acute febrile exanthema into those "bringing life into hazard"—small-pox, measles, scarlet fever, and erysipelas; and those "not bringing life into hazard—the lesser exanthema." These he divides into two sections: "1. Vesicular affections, of which there are four: Vaccina, varicella, herpes, and miliaria. 2. The simple efflorescences, not leading to fluid effusion, of which there are also four—namely, lichen, urticaria, roseola, and erythema." These twelve forms of eruptive fever constitute the subject of the present series of lectures.

After noticing the large proportion—amounting in England and Wales to one-ninth—of the entire annual mortality produced by small-pox, measles, scarlatina, and hooping-cough, Dr. G. remarks:—

"If the exanthemata are considered independent of the hooping-cough, considerable fluctuations will be perceived, the mortality by them falling sometimes as low as six per cent., at times rising to near thirteen; but a very important principle comes into play here, which serves to equalize the amount of epidemic mortality. This curious doctrine has long been surmised, but was never proved until the statistical inquiries of recent times showed its correctness. We may, for want of a better name, call it the law of vicarious mortality, by which is understood, that whenever one epidemic diminishes, another in-

creases, so that the sum total of epidemic mortality remains on an average of years nearly the same."

This doctrine of vicarious mortality, which would appear to be fully borne out by the statistics adduced by Dr. G., as well as by those added by the American editor, and by other and more extended series that we have examined, is one which demands a close investigation, in order that its accuracy may be more fully tested, and its true bearing upon many interesting questions in vital statics clearly established.

Dr. G. doubts the commonly received opinion, that the specific fever of an exanthematous poison may occur without an eruption; he denominates it a "very questionable pathology, which he cannot undertake to advocate." That, during variolous, scarlatinous, and morbillous epidemics, many persons experience an attack of fever, and most of the general symptoms of the prevailing disease, without the occurrence of any eruption, is unquestionably true; but whether these persons can with propriety be said to have passed through small-pox, scarlatina, or measles, whichever may be the reigning malady—whether they are as fully protected from a future attack as those in whom the eruption occurs—is to us, however, very problematical.

Dr. G.'s opinion in regard to the pathological relationship of the different exanthemata is thus expressed: "In general, the distinctive characters of exanthematous eruptions are strongly marked, but difficulties in diagnosis do occur. Small-pox is sometimes mistaken for chicken-pox. Measles is not always readily distinguished from lichen.

"When the exanthemata first invaded the world, their identity was universally believed. Rhazes and Avicenna taught that small-pox and measles were the same disease. Even so late as 1640 this doctrine prevailed all over Europe. Measles and scarlatina continued to be confounded until about one hundred years ago; nor has the bias in favour of exanthematic identity which our ancestors displayed, altogether subsided. Dr. Thompson of Edinburgh laboured to prove that chicken-pox is identical with small-pox. Dr. Baron, Mr. Ceely, and others, who would be justly offended by the imputation of confounding scarlatina and measles, or measles with small-pox, contend, nevertheless, strenuously for the identity of small-pox and cow-pox.

"That the disorders termed exanthemata bear a certain pathological relation to each other cannot be denied; but this principle is not more applicable to small-pox and cow-pox than it is to small-pox and measles, to small-pox and chicken-pox, to measles and scarlet fever. The epoch of the diffusion of small-pox and measles gives a certain countenance to such a doctrine. The relationship may possibly consist in some modification of the elements which compose the morbid miasm, and may be analogous to that which subsists between the nitrous oxide, the nitrous acid, and the nitric acid. Such a relationship, however, if admitted, is very different from the absolute identity for which Dr. Thompson and Dr. Baron contend."

All the facts connected with the history of the various epidemics of the more important of the febrile exanthemata would seem to point out a very close relationship between them. Whether they are all mere modifications of one or two primary diseases, or whether their distinctive characteristics result from some change that takes place in the elements composing one common morbid miasm, is a question of no little interest, but at the same time, one that will probably ever remain unresolved. Even, however, admitting this close relationship, we are not prepared to admit their absolute identity. The diagnosis of scarlet fever, measles, and erysipelas, and of small-pox, vaccinia, and varicella is too decided, and their successive propagation with all their distinctive features too clearly established, to suppose them to be mere varieties of one and the same disease.

The third, fourth, and fifth lectures are devoted to the early history, phenomena, statistics, and management of small-pox. They present under each of these heads every important particular connected with the history of the disease from its first recorded appearance, with its symptomatology, pathology, and therapeutics.

Dr. G. evidently considers inoculation to be a more certain protective against

the mortality of small-pox than vaccination; we should almost infer, from his arguments in defence of it, that he at the same time believes it to be nearly, if not equally, as safe in every point of view. We present his views on this subject, in his own words:—

"You will naturally wish to know what were the practical results of inoculation. I will tell you in a few words. Its influence in lessening the mortality of small-pox was something quite extraordinary, and scarcely credible. With ordinary precautions in the choice and preparation of subjects, not more than one in *five hundred* cases will terminate unfavourably. The ill success which attended the early inoculations, between the years 1722 and 1730, arose entirely from bad management, from the most culpable negligence in the choice of subjects, and an utter ignorance of all the principles by which the practice of inoculation should be governed. Had not the discovery of Jenner interfered to interrupt its extension and improvement, inoculation would have continued to this day, increasing daily in popularity. It cannot be doubted that improvements in medical science generally would have shed additional lustre on this practice.

"Since the introduction of vaccination, it has been the fashion to decry inoculation, and to impute to it mischief of which it was not guilty. The great objection made to inoculation, and that which recently induced Parliament to abolish it altogether under heavy penalties, was, that it disseminated the virus, and multiplied the foci of contagion. Dr. Watkinson and Dr. Schivenke, in 1777, and more recently Dr. Adams, broke the force of this argument, by pointing out how important a part epidemic influence plays in the diffusion of variola. Had they lived in our times, how strongly would they have fortified their arguments? We saw, in 1838, an epidemic small-pox raging in London, where inoculation had long been discontinued. The admissions into the Small-pox Hospital in that year exceeded those of 1781 and of 1796. Inoculation was abolished throughout England and Wales in 1840, and the act has been most rigidly enforced; yet, during the last two years, small-pox has visited every county of England.

"Sir Gilbert Blane has attempted to prove by statistics the evils of inoculation. He has shown that the proportion which the mortality by small-pox, in London, bore to the general mortality, increased, during the last century, from 78 to 94 per thousand; but many circumstances must receive attention before we are justified in drawing conclusions from this fact. The population increased prodigiously in the interval, more indeed than would suffice to explain the increased mortality by small-pox. But further, the general mortality diminished. Consequently, though the actual mortality by small-pox had remained stationary and uninfluenced by population, its ratio to the total mortality would appear to augment. Thirdly, Dr. Adams has shown that a correspondent increase took place in scarlet fever and hooping-cough, which are not communicable by inoculation. Lastly, a different mode of calculation would exhibit a very different result. The sophism consists in arranging your figures so as to include or exclude years of epidemic prevalence. If, for instance, we divide the last ninety years of the eighteenth century into three periods, we shall find that the recorded deaths by small-pox were as follows: 1711 to 1740 (when there was no inoculation), 65,383; 1741 to 1770 (when inoculation was coming into general use), 63,308; 1771 to 1800 (when inoculation was almost universal), the deaths were only 57,268; so that by this showing, inoculation diminished the mortality by 8115 lives.

"Statistics are very useful, and deservedly carry great weight with them; but they may be enlisted, with a little management, on both sides of an argument.

"One subject only remains for our consideration, and that is, the question whether any circumstances would still warrant us in recommending inoculation on scientific principles? Concurring most cordially in opinion that the practice of inoculation by *unqualified* persons ought to have been put down (not in 1840, but forty years before that) by stringent legislative enactments, I still remain of opinion that, under several circumstances, it is the duty of a medical man to recommend inoculation. These circumstances do not, indeed, often occur; but the legislature would hardly wish to control and fetter, even in a

single case, the deliberate judgment of a physician, acting for the benefit of his patient. I will name to you four of these cases: 1. When a person has been found, from peculiarity of habit, unsusceptible of vaccination. 2. When new sources of vaccine lymph are introduced, and it becomes of importance to ascertain that the new virus is efficient. 3. When young persons (between the ages of ten and twenty), vaccinated in early life, are proceeding as cadets to India. 4. When small-pox unexpectedly breaks out in a country district, at a time when (even with the facilities of a penny post) vaccine virus is not to be obtained. Other cases equally strong might be put."

This special pleading in favour of the safety of inoculation will be very readily overturned by a careful analysis of the statistics exhibiting the comparative mortality produced by small-pox prior to the introduction of inoculation, during the period of its general practice, and subsequent to the introduction of vaccination, as collected by different writers of Europe and America. In the Appendix to the present edition, Dr. Bulkley has presented sufficient evidence to show the general inaccuracy of the author's conclusions. There is great truth and good sense in the following remarks of the editor:—

"However great may be our indebtedness to inoculation for the amount of life saved by it to mankind, and we freely acknowledge it to have been great, we cannot but feel that the practice can never be relieved from the objection of multiplying foci of contagion; and while we concede that its continued employment would doubtless have led to great improvement in the mode of conducting it, and to still more decided benefits from it, with probably diminished risk of communicating it beyond the individual operated upon, we cannot be too grateful for the substitution of another protective power, apparently equally efficacious in its results, and almost entirely free from the charge of the least danger, in itself, either to the individual or to those about him. At the same time, we fully agree with our author, that there are circumstances which would warrant its adoption in special cases, and with proper restrictions, and that those mentioned by him come under this head; and we could even add to the list. It is not denied that inoculation may be perfectly safe, so far as the individual on whom it is performed is concerned, and that it may be a valuable test of his protection from casual variola; but the fact that, however mild in itself, it may communicate the most malignant form of the disease to another, is one which renders it a dangerous agent, the use of which, independently of other reasons, should be restricted within narrow limits, and, indeed, prohibited altogether, from the risk unavoidably attendant upon its general employment."

The sixth lecture presents a most excellent and sufficiently full summary of the pathology and treatment of measles, while the two ensuing lectures are devoted to the consideration of scarlet fever. The description of the several forms under which the disease ordinarily presents itself, and of its usual sequelæ, is clear and accurate. In treating of the pathology of the disease, Dr. G. remarks that, while "no doubt exists that, in a very large proportion of cases, scarlet fever is the product of a specific miasm," still, "the question may well arise, whether any combination of circumstances can develop an eruption possessing the characters of scarlatina," and he admits that his testimony is in the affirmative.

"I have seen scarlet eruption," he adds, "in no respect different from that of ordinary miasmatic scarlatina, arising from exposure to cold and moisture, and I often see true scarlatinal eruptions occurring in the progress of the secondary fever of small-pox, without any grounds for believing that contagion had operated. It seems as if secondary fever can develop this eruption in the same way as it throws out erysipelas."

We are familiar with an eruption closely resembling that of scarlatina, occurring under the circumstances referred to by Dr. G., but believe it to be of a very different character from the latter. The persons in whom the eruption occurred could not with any propriety be said to be labouring under scarlet fever. Of the occurrence of true scarlatina independent of exposure to any specific poison emanating from the bodies of patients affected with the disease, there can be no doubt; that epidemical visitations of the fever may occur from some morbid condition in the atmosphere, is, we believe, very generally admitted; but in the

absence of this epidemic influence, we have repeatedly observed sporadic cases of unquestionable scarlatina occur under circumstances where it was impossible that the patients could have been exposed to contagion either directly or through the medium of fomites.

On the subject of bloodletting in scarlet fever, Dr. G. makes the following judicious remarks:—

"Some physicians discourage all loss of blood in scarlatina, as being foreign to the genius of the disease. Others strongly advise it. Much will depend upon the character of the symptoms, the period of the disease, the condition of the patient; but I wish to impress upon you strongly, that scarlet fever not only admits of bloodletting, but often imperatively requires it, and that on general bleeding alone the safety of the patient often depends."

"While I thus advocate the necessity of bloodletting in certain cases, I freely acknowledge that it is inapplicable to others. You would not always do harm by the attempt (for it is one thing in scarlet fever to open a vein, and another to draw blood); but any such indiscriminate use of the remedy would expose you and the remedy to just reproach. The successful treatment of the disease by bleeding in one epidemic, at one season, and in one district, does not authorize the same procedure in another epidemic, a different season, or a different locality."

"Local bloodletting is well adapted to many cases of scarlet fever—to cases accompanied with great determination of blood to the throat—to cases attended with headache or threatening coma." "In the management of the several inflammatory sequelæ of scarlatina (otitis, ophthalmia, and pneumonia), leeches and cupping are quite indispensable.

"Leeches generally bleed profusely in scarlatina, from the excited state of the cutaneous circulation. Four leeches in scarlatina will often do as much as twelve in typhus. It becomes occasionally necessary to stop the bleeding, which lunar caustic will do effectually. This tendency of leech-bites is always to be kept in view, but especially in the scarlet fever of young children. The child's life might otherwise be sacrificed, and the measure itself brought unfairly into disrepute."

"I cannot doubt but that a large proportion of cases of scarlatinal dropsy arise from the neglect of measures which ought to have been adopted in an earlier stage of the disease. If a certain amount of bloodletting, a certain number of doses of calomel and jalap, a certain amount of rest and abstinence had been indicated, but neglected or withheld, then, when dropsy occurs, the deficiency must be made up. The same things must be done late, which ought to have been done early."

Erysipelas is the subject of the ninth lecture. This disease, though not properly an exanthem in the strict pathological meaning of the term, bears, however, in many of its features, so close an affinity with the febrile exanthemata, that it is most conveniently treated of in connection with them. Erysipelas is, properly speaking, inflammation of the skin, and very commonly also of the subjacent cellular texture. Very good reasons might be advanced, therefore, why it should be transferred to the phlegmasiæ; but, with our author, we consider this a subject "not worth wasting time about."

In considering the causes of erysipelas, and the manner in which it spreads, Dr. G. first adduces the facts which prove it to be an epidemic malady, and which satisfactorily, to his mind, show that its most important source is miasmatic; he then explains the reasons which induce him to believe that this miasm, when formed, is capable of propagating itself by contagious emanations, and, in conclusion, points how erysipelas originates from causes not of a specific nature, some internal and others external to the human frame.

After referring to facts bearing upon the epidemic and contagious character of the disease recorded by Sauvages, Baillie, Calmeil, Velpeau, Blache, and Chomel, and the list might have been extended to a much greater length, Dr. G. remarks:—

"A connection of more than twenty years with the Small-pox Hospital has given me abundant opportunities, not only of confirming the truth of these positions, but of showing that we may carry our views much further. I feel

persuaded, 1st. That erysipelas may commence in a hospital without the suspicion of importation. 2. That being so generated, from bed to bed, it may spread by contagion. 3. That the miasm generating erysipelas is identical with that which, in lying-in hospitals, generates puerperal peritonitis, which, in foundling hospitals and workhouse nurseries, gives rise to pudendal gangrene and umbilical ulceration; which in army hospitals generates hospital gangrene; which in hospitals differently circumstanced, is found to occasion a malignant form of cynanche, both mucous and cellular, with otitis, glossitis, an asthenic form of laryngitis, and sometimes the most aggravated form of typhus gravior."

"The dependence of erysipelas on a miasm *sui generis* is no new doctrine. It has been stated, over and over again by individual writers, but it has never, I think, been urged by systematic authors with the importance which it merits; nor has the doctrine been received as one of the avowed axioms of pathology. Dr. Rollo, in a treatise entitled, '*A Short Account of a Morbid Poison acting on Sores*,' and published very early in this century, distinctly announces the principle, and illustrates the intimate connection between erysipelas and hospital gangrene."

The circumstances which lead to the generation of the miasm productive of erysipelas, which Dr. G. denominates "*ochletic miasm*"—from οχλος, a crowd, are, according to our author, 1st, and most important, overcrowding the wards of an hospital.

"But," he remarks, "it is not numbers alone which are to be considered; a ward might safely hold fifty cases of *simple* fracture, which would not with safety contain twenty cases of compound fracture. Something, therefore, depends on the nature of the disorder. All disorders which throw out diseased secretions are more apt to taint and vitiate the air than those where no such secreting process goes forward."

"Another element of great importance in determining the sources of ochletic miasm is the degree of attention bestowed on cleanliness. If the bed-linen, mattresses, palliases, sheets, and blankets be frequently changed, the floors well cleaned, and the walls frequently whitewashed; if the nurses be careful to carry away all foul secretions, and to purify the patient's body by abundance of soap and water; in short, if the internal regulations of the hospital be good, miasm would, I suppose, be rarely engendered, even though the wards were crowded."

"A fourth element must enter into the calculation, and that is a good supply of fresh air. This, by some, is considered all in all; but it is not so, and all the ventilation in the world, conducted on the most scientific principles, and superintended by Dr. Reid himself, would fail in preventing ochletic miasm, if feather-beds and bolsters, soaked in unhealthy discharges, are permitted to remain in the ward.

"Dr. Rollo has advanced a step further in the analysis of the sources of ochletic miasm, and maintains that the disposition to erysipelas and its co-relative diseases (puerperal peritonitis and hospital gangrene) depends partly on a peculiar but hitherto undetected condition of the atmosphere. He is led to this opinion by observing that erysipelas sometimes shows itself in the airiest, least crowded, and best regulated hospitals. Without stopping to inquire how much is due to this circumstance, we are fully warranted in saying that the state of the atmosphere must not be lost sight of in such an investigation. We know, on the authority of Dr. Lind, that in Batavia, and other localities notorious for malaria, hospital gangrene and erysipelas, and every sort of associated disorder, prevail with intensity at certain seasons."

The facts adduced by Dr. G. in proof of the spread of erysipelas by contagion bear no proportion to the vast amount of direct testimony that might be brought forward, from sources of unquestionable authority, in support as well of this position as that of the intimate correlation of erysipelas and puerperal fever. As we believe both positions to be well founded and of the highest importance in directing us to the prophylaxis of peritonitis in the puerperal female, we are gratified to find so popular and distinguished a writer as Dr. G. engaged in their advocacy. We have long maintained the contagious character of erysipelas and its intimate relation with child-bed fever, and have been considered as somewhat

visionary in so doing; the evidence in support of the accuracy of these opinions is constantly augmenting, and every day attracting increased attention.

A very good summary of the treatment of erysipelas is given. Although we cannot agree with the author in his estimate of some of the remedies that have been recommended in the disease, yet, upon the whole, his therapeutical directions are judicious.

In the tenth and eleventh lectures, Dr. G. gives the history, phenomena, practice, pathology, and results of vaccination. Dr. G. denies *in toto* the opinion recently promulgated, and adopted very extensively by the physicians of Europe and America—the identity, namely, of cow-pox and variola. The objections he adduces to this opinion are of great weight, and his conclusions would appear to be correct: namely, that

"Small-pox and cow-pox are antagonist affections—that cow-pox, instead of being, as Dr. Baron maintains, of a variolous, is, in fact, of an *anti-variolous* nature—that it alters and modifies the human constitution so as to render some individuals wholly, others partially, and for a time, unsusceptible of small-pox. Cow-pox and small-pox may be viewed as opposing powers, striving to gain the mastery of the human frame, and each, under different circumstances, and at different times, proving successful. The conclusion to which M. Bousquet (*Traité de la Vaccine*, p. 16) has come to, appears to me to be the just one. 'La vaccine,' says this acute writer, 'et la variole ne sont pas la même chose. Mais si elles diffèrent dans leur origine, dans leur principe, elles se suppléent merveilleusement dans leurs effets. Il n'y a pas entre elles identité de nature, mais il y a reciprocité d'action.' To my mind, nothing can be more satisfactory than such a conclusion."

We cannot see in what manner our confidence in its protective powers can in any degree be strengthened by supposing that the cow-pox is identical with small-pox, or how it is possible, as asserted by one writer, "that a conviction of the non-identity of the two diseases would go far to shake *in toto* our belief in the real efficacy of vaccination." Our confidence in the efficacy of vaccination is founded solely upon the well-established fact that the great majority of those who have been placed fully under its influence resist the infection of small-pox under every degree of exposure. A knowledge of the true nature of the vaccine disease would be interesting, perhaps useful; but it can neither strengthen nor overturn the fact just referred to.

Dr. G. believes that the protection against small-pox afforded by vaccination diminishes or wears entirely out in a few years.

"It is a matter of general notoriety," he remarks, "that small-pox is very seldom taken by vaccinated children who are under the age of eight years. In the course of a long experience at the Small-pox Hospital, I have never seen more than three or four instances of such an occurrence. The protective power of cow-pox may, therefore, for all practical purposes, be considered as *complete* for that period; but we are compelled to confess that later in life it diminishes in a certain proportion of cases. What the exact proportion of cases is, never has been ascertained, and, for very obvious reasons, never can be known or even guessed at.

"But although this be impossible, there seems no reason why we should not attempt to ascertain the laws which affect and limit that power of resistance to the variolous virus which cow-pox displays in so many instances, and so remarkably in infantile life. I have mentioned puberty as a disturbing cause. I have no doubt that others exist, of equal, perhaps of superior efficacy. Among them may be mentioned change of climate, which appears to have a very marked influence, sufficient to induce us to recommend the re-vaccination of all young people going to or returning from India. A severe fever, in like manner, may so alter and modify the general mass of fluids as to open a door to the reception of the variolous effluvium. Importance should be attached also to the epidemic constitution of the season. It is certain that persons who under common circumstances have, through the agency of the cow-pox, resisted the variolous miasm, succumb to it under epidemic visitation."

"The preceding tables"—tables given in a former part of this lecture, but which we have not considered necessary to copy—"while they certainly counte-

nance the notion of diminished vaccine energy, through the medium of those changes which time effects in the frame, prove, at the same time, most incontestably, that a portion of virtue still clings about the system, sufficient to preserve life, though not to exhaust susceptibility. To determine with accuracy the average ratio of mortality which obtains when small-pox invades those who have been well vaccinated, is a point which the statistical records of the last twenty years teach us with considerable precision. You will remember that small-pox in former times (and among the unprotected in recent times) proved fatal at the rate of twenty-five, or from that to thirty-three per cent. (one out of four, or one out of three.)

"*Table showing the Rate of Mortality by Small-pox after Vaccination at Different Periods and in Different Parts of the World.*

Locality.		Number of cases.	Deaths.	Rate of mortality per cent.
Small-pox Hospital, London,	1826 to 1832	619	40	7
"	1833 to 1839	900	60	7
"	1840 to 1846	1011	64	6½
Total at "	1826 to 1846	2530	164	7
British army	1834 to 1838	1025	122	12
Copenhagen	1824 to 1835	3093	66	2
Wirtemberg	1831 to 1836	1055	75	7
Vienna	1834	200	16	8
Ceylon, Epidemic of	1830	260	34	13
"	1833 to 1834	341	23	7
	Total	8504	500	6

"The above table, compiled from various sources, will show how great is the diminution in the ordinary rate of mortality by small-pox, when vaccination has preceded. It will be seen that the average rate is then six per cent., the maximum being thirteen, and the minimum two.

"The result of these statistical investigations may be stated to you in a few words. Small-pox in the unvaccinated is five times more fatal than it is to those who have previously undergone vaccination. The following table, carefully drawn up from the records of the Small-pox Hospital for the year 1841, shows you how this is effected. It is an analysis of the several cases admitted in that year, having small-pox after vaccination. It will be seen that nearly two-thirds of the cases (or sixty per cent.) received the disease in a modified form. The remainder (forty per cent.) received it in a normal form, but in variable degrees of intensity, the mortality among *them* following the ordinary law.

"*Analysis of one hundred and fifty-one cases of Small-pox succeeding Vaccination, which occurred at the Small-pox Hospital in* 1841.

			Admissions.	Deaths.
Normal	56	Confluent.	25	8
		Semi-confluent	19	0
		Distinct, regular	12	1
Abnormal or modified	95	Confluent, modified	18	0
		Semi-confluent, modified . . .	19	1
		Varicelloid, or distinct modified .	58	0
		Total	151	10

"Deducting the two deaths among the milder cases, which were the result of superadded disease, there remain eight deaths. Now, supposing that these 151 persons had never been vaccinated, the mortality would have been at least five times eight, or forty, and might, under unfavourable circumstances, have reached fifty. Such appears to be the actual amount of the protection which vaccination affords, and with it, such as it is, we must, I believe, rest satisfied. My firm persuasion is, that no additional precautions on the part of vaccinators, and no alterations in the kind of lymph employed, will have the slightest effect on the general results."

The number of the vaccinated who are liable to an attack of small-pox, in either its normal or modified form, will depend very much upon the greater or less care that has been taken to place the systems of all subjected to the operation fully under the vaccine influence. That all who are reputed to have been *successfully* vaccinated, are not thus completely infected, there cannot be a doubt. Independently of gross ignorance and carelessness on the part of vaccinators, there are many circumstances that may occur to interfere with the regular progress of the vaccine vesicle, and to prevent the system from being brought perfectly under the protective influence of the vaccine infection, that cannot always be anticipated and guarded against; consequently, there will be in every community, even in those where vaccination is most extensively and carefully practiced, many who are but partially protected against small-pox, from the imperfect manner in which they have undergone that process, while others are placed in the same predicament from the possession of some constitutional peculiarity, in consequence of which their systems cannot by a single, nor often even by repeated vaccination, be brought entirely under the influence of the vaccine influence. Now, we have no other test that an individual is fully protected by vaccination than the repetition of the operation after some interval of time; and, at the same time, by this re-vaccination, we remedy, in most cases, the imperfect infection produced by the previous operation.

It is true Dr. Gregory would appear to be rather opposed than favourable to re-vaccination; nevertheless, the weight of testimony is decidedly in favour of the operation. The physicians of this city, who were at first adverse to re-vaccination, have become convinced, from personal experience, of its value, and now, very generally, practice and advocate it. A respectable array of evidence in favour of this measure, derived from the experience of the physicians and institutions of Europe, where re-vaccination has been practiced on a large scale, and in a manner well calculated to test its results, is given, in the Appendix to the present edition, by Dr. Bulkley.

Of the two remaining lectures, the thirteenth and fourteenth, the one is devoted to the consideration of the vesicular eruptions, and the other to a short notice of the non-contagious efflorescences. This portion of the work may be consulted with profit by the student. The information in respect to the pathology of the diseases comprised under the two general heads, though concise, is clear and accurate, and the directions for their management plain and judicious.

The Notes and Appendix of the American editor form an interesting addition to the text of Dr. Gregory. They enhance materially the value of the present edition of his lectures. D. F. C.

Art. XX.—*Elements of General and Pathological Anatomy, presenting a View of the Present State of Knowledge in these Branches of Science.* By David Craigie, M. D., F. R. S. E., etc. etc. Second edition, enlarged, revised, and improved. Philadelphia: Lindsay and Blakiston, 1851. 8vo. pp. 1072.

The treatise of Dr. Craigie, though less full, perhaps, in some particulars than could be desired, and especially in reference to the morbid changes detected by the microscope, to which, within a recent period, so much attention has been paid by the physicians of continental Europe, is nevertheless one of the best compendiums of the elements of general and pathological anatomy we possess. By availing himself of the most reliable sources for his materials; by comparing and generalizing, with fidelity, the results arrived at by those who have investigated with the greatest care the leading subjects embraced in the general plan of the work; and by arranging, in a connected and systematic form, those deductions and inferences that are justified by an accurate analytic collation of the best authenticated facts, Dr. Craigie has succeeded in placing within the reach of the student a volume well calculated to furnish him with correct statements and useful information on the nature and distinctive characters of diseases, as revealed to us by pathological anatomy.

In preparing the present edition, all the materials of the first have been employed. But they have been greatly increased by the introduction of new mat-

ter under the proper heads, in order to carry forward to the present time the information acquired since the appearance of the first edition. Numerous rectifications, both in healthy and morbid anatomy, have also been made.

Besides the changes now mentioned, two new books have been added: one on the structure and morbid states of the glands; the other on the structure and morbid states of the lungs and heart.

There is but one department of pathological anatomy not embraced in the present volume, and that is local diseases, and those varieties of malformation which consist in misapplications of the component parts of organs. In noticing this omission, the author, in his preface, remarks, that these subjects, it is almost superfluous to say, cannot, without a violation of the principles of arrangement, be introduced in a work on general anatomy; on this account, however reluctantly, he has been obliged to exclude them almost entirely, unless so far as their general characters could be stated. D. F. C.

Art. XXI.—*The Microscopist: or a Complete Manual on the Use of the Microscope: for Physicians, Students, and all Lovers of Natural Science.* With illustrations. By Joseph H. Wythes, M. D. Philadelphia: Lindsay and Blakiston, 1851.

This is the title of a handsome little book, of 182 pages 12mo., which is neatly printed, and is illustrated with many well-executed wood-cuts.

As this is the first American work upon a subject which is now exciting considerable attention, it will probably be extensively circulated and read. We regret that it is not better calculated to advance the knowledge of the microscope, and its relations to natural and medical science. A "*complete* manual" on this subject would be a valuable acquisition to the American student of medicine and of general science; but every one who purchases this book with the expectation of becoming thoroughly acquainted with the instrument, either practically or theoretically, will be exceedingly disappointed.

A student possessed of a microscope can learn nothing of its plan of construction or its manipulation unless it happens to be of the same form and manufacture as that figured on the frontispiece.

The table of contents is sufficiently full. It contains, Chapter I. History and importance of the microscope. II. The microscope. III. Adjuncts to the microscope. IV. How to use the microscope. V. On mounting and preserving objects for examination. VI. On procuring objects for the microscope. VII. Test objects. VIII. On dissecting objects for the microscope. IX. The cell-doctrine of physiology. X. Examination of morbid structures, &c. XI. On minute injections. XII. Examination of urinary deposits. XIII. On polarized light. XIV. Miscellaneous hints to microscopists. But the amount of information upon each of these subjects is so extremely limited that the book will be found entirely unsatisfactory to all but those who are content with a superficial knowledge of the subject.

What is said concerning the history of the microscope, its adjuncts, and their uses—the procuring, preparing, and mounting objects—is taken principally from Queckett's work, to which all those interested in the microscope had better directly refer for information. The chapters on the cell-doctrine, morbid products, and urinary deposits, subjects particularly interesting to the physician, are extremely meagre; of course they cannot be otherwise in a work of this size. They would fail to instruct a student who was entirely ignorant of the subject; and a properly educated physician would merely be reminded of textbooks and well-known treatises of the present day.

Since, therefore, it contains nothing new concerning either the philosophical, mechanical, or practical bearings of the microscope, and certainly nothing original in minute anatomy, physiology, or pathology; and since it contains so little of that valuable information which is already published in works quite accessible, we are at a loss to conceive of any benefit which will be conferred by its publication. J. N.

ART. XXII.—*The Philosophy of Vital Motion.* By CHARLES BLAND RADCLIFFE, M. B., Licentiate of the Royal College of Physicians; Lecturer on Vegetable Physiology and Botany at the Westminster Hospital, etc. etc. London, 1851. 8vo. pp. 158.

WE believe that we shall best communicate to our readers an idea of the kind of philosophy taught in the volume of Mr. Radcliffe, by presenting to them the author's preface, which is as follows:—

"In a work lately published under the title of '*Proteus, or the Law of Nature,* I have endeavoured to realize that unity, or *τὸ ἓν*, which is said to ensoul the diversities of things, and bind them together in one. I have traced this principle in plant and animal, not merely as a vague generality, but as pervading the entire structure—from a simple organ to a perfect organism, and from the complicated nervous, vascular, or osseous systems, to the more rudimentary parts of the economy. I have traced, also, the same principle into inorganic bodies; so that, in relation to form, we may conclude that there is one archetypal law in all created things, whether animate or inanimate. Heat, light, chemical affinity, electricity, motion, and other physical agencies, have also been found to be connected with each other, and with the more recondite vital influences, as correlative aspects of one central force; so that the unity of creation is reflected in force as well as form. And finally, this principle has seemed to be absolute, for on proceeding onwards it is seen to be impossible to separate form from force, and to regard the one as a mere lifeless image, or the other as a mere 'naked essence.'

"But it may be objected that all these ideas are mere philosophical abstractions, and that this unity of nature is not a practical truth to be realized in the problems of everyday physiology. If there be this oneness of which you speak, it may be asked, how is it that the body is obedient to a law which is totally different to anything we find in inorganic nature? Will it explain the hitherto inexplicable capillary movements of the blood? Will it solve the oft-perplexed, and still unread riddle of muscular action? Will it tell us why the heart continues its mysterious beatings? Will it give the clue to a hundred acts and movements which are distinctive of life, and which we are obliged to refer to an incomprehensible and potent essence which is shut up in every living body? for, except it will help to do these things, the doctrine is of no practical value. An objection like this is just and right, for no one can be expected to receive an opinion which is based merely on transcendental facts and arguments, especially when it is belied (or seems to be) by his own daily experience.

"Let us encounter, then, this objection on the grounds that are here indicated, and inquire whether the *phenomena of vital motion* will not receive light and interpretation from the doctrine they seem to contradict. Remembering the arguments for a common law, let us not seek the explanation in the body alone in which the movements are manifested, but in a wider range of causes. Let us treat unity as reality and not as a fiction, and wait patiently for the result. If we do this, every phenomenon will be found to point to this truth; and this truth, on the other hand, by enlarging our ideas to receive the comprehensiveness of nature, will enable us to advance far towards the explanation of vital motion. If we do this, the movements of blood or other nutrient fluids in vessels independently of any cardiac impulse, the action of muscle, the beating of the heart, and many other mysteries of life, will no longer perplex us, for each will interpret the other; and all will refer to a common law—cosmical—one."

If we understand our author correctly, and we are not so sure that we do, for his language is often anything but clear and explicit, nor are we very certain that he has himself always a very definite conception of the idea he desires to convey in many of the loose and mystical sentences with which the work abounds;—if, however, we have not mistaken his meaning, he refers the vital movements of the living organism to "the several forces of ordinary matter, namely, heat, chemical affinity, electricity, and the rest," and that even what may be termed the vital and peculiar principles, are either mere modifications of these several forces, or else the motors of them.

He urges his readers to "banish the notion that the causes of vital movement *must*, of necessity, be different from those which determine motion in inanimate bodies."

In regard to the development of the primary germs or nuclei of the organic fluids, he remarks, "We may argue that expansion is inevitable under the operation of heat, and thus it is possible to conceive that the enlargement of growth may be no mysterious property, but only the natural result of the operation of heat upon the substance. Even the formation of the cavity, by which the originally solid nucleus is converted into a hollow vesicle, may also be a part of the same process, for under the operation of an expansile force the particles of these minute fabrics will tend outwards from the centre."

"The force connected with the process of respiration must," according to Mr. Radcliffe, "be considered, in great part at least, as physical and mechanical in its character—for it is difficult to attach the idea of vitality to a change so closely allied to combustion and putrefactive disorganization: and the more so, as the effects upon the capillaries may be explained by this means. The dilated condition of the vessels, when the function of respiration is vigorous, may be regarded indeed as the natural consequence of the free extrication of heat, which must take place under these circumstances, and the shrunk and contracted condition when the process flags, as an equally necessary consequence of the diminished supply of the same agent."

In relation to muscular motion, upon which Mr. Radcliffe entertains many very peculiar and heterodox opinions, he remarks, in concluding his examination of the subject:—

"We have reviewed the phenomena of voluntary muscular action in relation to the several correlated aspects of physical force, and from this examination it appears that the muscles are subject to each and all of these agents, as inorganic bodies are subject. Heat, light, electricity, and chemical agency are all correlative of motion, and this latter aspect of force, so far as we may judge, is not different from the motion which is correlative of these forces in inanimate nature."

The following quotation will exhibit the opinion of our author in respect to the nature of nervous influence:—

"The physical mode in which the nervous influence affects the capillary vessels, for there is such a tangible mode of action, may be ascertained without any difficulty. When, for instance, the mind is paralyzed by fear, the skin becomes pale and blanched, in consequence of the shrinking of its vessels; and not only so, but if the bodily frame be fragile and delicate, the deadening influence extends to the heart, and a state of syncope or entire suspension of circulation is the result: when, on the other hand, the frame thrills under the excitement of joy, and the nervous power is exuberant, the countenance becomes radiant, the skin is suffused with blood, and the heart beats with increased vigour. These phenomena afford a twofold illustration of the importance of the nervous principle as an 'agent of life,' and the nature of the agency physically considered.

"As evidenced in the capillary vessels, therefore, the effects of an exuberant or deficient supply of nervous influence are identical with those which attend the communication or withdrawal of that physical agent (heat) with which we have been already occupied—so identical, indeed, that we naturally inquire whether the higher and mystical force does not operate through, and by means of, this ordinary agent. Independently of any unintelligible theories on the subject, it would appear that the peculiar nature of the nervous system, and the relation which this system holds to the rest of the organism, would authorize such a conjecture. The composition is of cells and fibres, constructed upon a common type, and moulded from a common plasm, with the other parts of the body; and structurally, therefore, there is no sufficient reason to suppose speciality of attributes. Nerve and ganglion, also, dissolve away under the ordinary destructive agencies which act upon the body, and change into new chemical compounds, identical in nature and history with the compounds which result from the disintegration of the rest of the organism. Viewing the question, therefore, in connection with genesis, as in the act of nutrition elsewhere, a certain amount of ordinary physical force must attend the formation of nerv-

ous matter: and viewing it in connection with destruction or disintegration, or, in other words, in relation to the respiratory function, the chemical affinity, which is here in active play, is but another name for the same force. A proportionate destruction of tissue is also involved in the development of nervous influence; and in this respect, as in other varieties of force, the nervous influence may be regarded as the exponent of a certain condition of change in matter.

"For these reasons it must be admitted that ordinary physical agencies constitute a part, at least, of nervous power; nay, more, that the degree of the one is commensurate with that of the others. It is impossible, moreover, to conceive the idea of ordinary force being present and inoperative; and it can scarcely be imagined that the nervous power which is superadded to the more commonplace agents should have a different law of action; otherwise, the one might negative the other. Whatever difference of essence, reason and experience argue a community of operation; for, so far as the capillary vessels are concerned, the effects of an insufficient or excessive supply of nervous influence are similar to those which attend equivalent alterations in the intensity of ordinary force. Such, indeed, are the facts already cited in connection with the history of fear and joy as to allow it to be supposed that the nerves act upon the capillaries, not by the sur-addition of any new agency, but by means of that which is already in operation—by that, namely, which is the necessary exponent of the molecular changes in the material part of the nervous substance."

The physiological facts and considerations, remarks Mr. R., are of such a character as to allow us to suppose an intimate relation between the nervous influence, physically considered, and the ordinary force of matter—a relation

"So intimate, indeed, that the former may be regarded as a mere modification of the latter, not essential to the functions of vegetables, or of the lowest tribes of animate existence, but superadded in order to intensify the vitality of higher and more favoured creatures."

In order that our readers may be in possession of our author's entire doctrine, as set forth in the volume before us, of the nature of the nervous influence as an agent in vital movement, it is necessary to add to the preceding quotation the following, from the fifth chapter:—

"In the preceding chapter, it has been found that nervous influence and the other forces of organization agree in their mode of action, and that all these vital and physico-vital agencies co-operate harmoniously with the several varieties of extra-organic force—and hence we may infer, with very sufficient reason, that nervous influence is nothing more than a modification of cosmical force.

"In another work, it has been shown that the nervous system is formed upon the same archetypal plan as the other parts of the body, and even of the body itself, and that the same plan is extended to what are called inanimate bodies; and in this unity of the material framework of things there is another reason for supposing the nervous influence to be a variety of cosmical force. It has been shown, also, in the same work, that all forms of physical and vital force are truly correlative: and hence a final argument in favour of the view that the nervous influence is a variety of cosmical force.

"We are not taught, however, by these considerations to do away with the idea of nervous influence, though we regard it in this point of view, or to ascribe its workings to electricity, or heat, or light, any more than we should confound the existence of light, or heat, or electricity, and say that either of these agents was identical with the others. Correlation, in fact, involves the idea of unity, but it as distinctly retains that of difference. Nor are we to confound nervous influence with mind, for—if it be as we have said—it is clear that it can have no exclusive claim to be considered as identical with this essence.

"The nervous influence, therefore, is to be regarded as one of several modes of cosmical force, which reacts harmoniously with all companion agencies in the determination of vital movement."

The concluding chapter treats of "the action of mind in vital movement." Of this portion of the author's treatise we can furnish our readers no account.

We candidly confess that we have been unable to catch the author's meaning. His language is throughout mystical and indefinite; his arguments, so far as we can understand them, vague and inconclusive; many of his illustrations are irrelevant; while others, as for example his evidence of the conscious state of the mind after death drawn from the imagery of the parable of the rich man and Lazarus, are exquisitely ridiculous.

The work of Mr. Radcliffe, though it unquestionably embodies many important truths, is certainly but ill adapted to advance materially our knowledge of the philosophy of vital motion. D. F. C.

ART. XXIII.—*Observations on the Diseases of the Rectum.* By T. B. CURLING, F. R. S., Surgeon to, and Lecturer on Surgery at, the London Hospital, etc. London, 1851.

MR. CURLING is already favourably known to the profession by his "Essay on Tetanus," and by his more recent treatise on the "Diseases of the Testis." The volume of which we have given the title above is a very unpretending one of 123 pages octavo. The author does not profess to present a complete treatise on the diseases of the rectum, but rather "to offer such views of pathology as may lead to judicious practice." After a careful perusal of the book, we cannot see that Mr. Curling has presented therein any important novelty; but we can bear cheerful testimony to the soundness of his pathological views and to the judicious practice which he advocates.

The diseases of the rectum of which he treats are, in special chapters, Irritable Ulcer, Spasm of the Sphincter Muscle, Hemorrhoids, Prolapsus, Polypus, Fistula in Ano, Chronic Ulceration, Stricture, Cancer, Feces impacted in the Rectum, and Anal Tumours and Excrescences. These are preceded by some general observations on the peculiarities which attach to the affections of this part of the body and to the operations for their relief.

In order to form a correct diagnosis of most of these complaints, the use of *a speculum* is essential. Mr. Curling, having found the instruments in common use more or less defective, has had made "a plated speculum of a conical form, so as readily to penetrate the sphincter, with a side opening of sufficient width and carried to the blind extremity of the instrument; and instead also of a movable piece, an ebony plug is substituted, having a plate which fits close into the aperture. The plug admits of being more readily removed and replaced than a slide." A drawing of this instrument accompanies the text.

In describing the *irritable ulcer* of the rectum, Mr. Curling calls attention to its dependence upon, or connection with, the rectal pouches, and shows that it is not unfrequently mistaken for *a fissure* of the mucous membrane, because when it is examined while the rectum is not distended it presents a linear appearance. The symptoms of this troublesome and painful affection are well narrated. The treatment which the author advises, in common with most other surgeons, consists in making a longitudinal incision through the ulcer, including also the sphincter muscle. He says, "the cutting edge of a straight blunt pointed bistoury is to be applied to the centre of the ulcer, which is to be divided by an incision extending to the internal sphincter. The fibres of this muscle are easily felt with the left forefinger, and the depth of the incision regulated accordingly. When the ulcer is situated in the front part of the rectum, it should be divided a little to one side, or the wound will not heal readily; and besides, in the female the division towards the vagina may cause incontinence of feces." When this operation cannot be performed, from objection on the part of the patient or other cause, he advises rest, the employment of mild laxatives, and the local application of sedative and astringent or stimulating ointments. He particularly recommends, if the ulcer be very sensitive, and the spasm of the sphincter considerable, the use of an ointment containing chloroform, as follows: ℞.—Chloroformyl ʒj—ʒij; zinci oxidi ʒss; olei olivæ ʒj; cerat. cetacei ʒiv. M. ft. unguent.

Spasm of the Sphincter Muscle is the subject of the next chapter. It is described as occurring much more frequently in females, particularly those of great nervous excitability, than in the male. The symptoms are similar to those

of the irritable ulcer, though less severe, and the feces are not streaked with blood or pus, as in the other case. The speculum should be employed to certify the diagnosis, the patient having been previously subjected to the anæsthetic influence of chloroform to relax entirely the sphincter. In ordinary cases the treatment which Mr. Curling counsels comprises the local direct application of an ointment containing belladonna, opium, or chloroform to the mucous membrane covering the sphincter muscles, and the employment of iron, with sea-bathing, attention to the condition and functions of the uterus, etc.

The succeeding chapter on Hemorrhoids is very full and instructive. In the cutting operations which may be practiced for their relief, the author very properly points to the liability to troublesome bleeding and the expedients for arresting it. These observations, as well as those which follow, upon Polypus, Prolapsus, Fistula in Ano, and Chronic Ulceration of the Rectum, though excellent in themselves, yet offer nothing which we need dwell upon as peculiar to this treatise.

The chapter on Stricture of the Rectum exhibits very well the author's careful study and wise surgical practice. The causes of stricture are ascribed to chronic inflammation of the mucous and submucous areolar tissues of the rectum, more or less limited in extent, and to contraction consequent upon the healing of ulcers, abrasions, or wounds. Mr. Curling considers the last-mentioned circumstances to be more frequent in their occurrence than is generally supposed. He mentions a case of stricture in a child of five years of age, the result of the perforation of the walls of the rectum and vagina by the pipe of a syringe in the endeavour to administer an enema; the child lived ten months after the reception of the injury. The symptoms and the physical alterations are well portrayed, and the treatment is fully detailed. The treatment of this affection must be chiefly mechanical, by dilatation. But before dilatation is commenced, the author advises the direct application of leeches to the inner surface of the rectum at or near the strictured part; Mr. Curling insists upon the necessity of very gentle and gradual dilatation of the stricture; and he considers it of questionable expediency, to attempt this treatment unless the contraction be within reach of the finger, because, when situated farther up the bowel, "there is no way of ascertaining its character, no guide for the selection of a proper-sized bougie, or for using it so as to dilate the contraction; no means, too, of determining positively whether the disease is simple stricture, or that form of disease—the carcinomatous—which is not likely to be benefited by mechanical interference, and in which the use of instruments is attended with risk of perforation." Previous incisions of the strictured part may be resorted to as adjuncts to the dilatation; and in making these, he prefers two or three cuts in different parts of the contracted ring rather than a single deeper division of the stricture, because the former method is sufficient to accomplish the end in view, and is much less likely to be attended with bleeding than the latter, and moreover it does not permit the access of feces and other irritating matter into the loose areolar tissue about the rectum. It is usually taught that a permanent cure, or even a lasting amendment, is rarely to be expected from dilatation of a stricture of the rectum, in consequence of the difficulty of overcoming the rigidity of the altered tissues, and of so modifying them that they may regain their normal physical and physiological properties. But Mr. Curling is more hopeful in this matter. He says: "More extended experience and longer observation of cases have convinced me that, if the dilating treatment be sufficiently prolonged, the areolar tissue may regain its elasticity and be restored to its healthy state, without retaining the disposition to contract and to indurate."

If it be impossible to overcome the contraction, and an operation for opening the bowel above the stricture be determined upon, Mr. Curling gives the preference to Littré's method, in which the incision is made in the left groin. The circumstances which render this step expedient or necessary, and the mode of ascertaining the probable position of the stricture, are ably presented. In short, this chapter will well reward the reader for its perusal.

Concerning Cancer of the Rectum, the book before us offers nothing particularly worthy of remark. Mr. Curling disapproves of excision in this disease, as practiced by Lisfranc and Dieffenbach, notwithstanding the assurances of

the latter surgeon that he has performed the operation on no less than thirty patients, not one of whom died speedily afterwards. In some of these patients, the disease returned in three months. In one, a very large cancer, with destruction of the external skin and perforation of the bladder, appeared within a month; but the larger proportion of cases continued well many years afterwards. "I cannot but think," says Mr. Curling, "that an operation which subjects the patient afterwards to the misery of incontinency of feces and to great risks from a stoppage in the opening from the contraction of the wound, and, in cases where the cancer is sufficiently developed to leave no doubt of its true nature, to an early return of the disease, ought to be condemned. The chance even of a prolongation of life is not worth acceptance on the terms offered by such an operation." It should be condemned, in general terms, we admit, and not presented for the consideration of a patient excepting in its true colors, with all its painful accompaniments and gloomy prospects. But, after all, the Devil's assertion is still true, "Skin for skin, yea all that a man hath will he give for his life," even for a shadowy possibility of life. And the person who is tortured with a cancer of the rectum may perhaps feel that his cup is already so filled to overflowing with bitterness that a few additional drops could scarcely increase his misery, while the prospect of even temporary relief, dim though it be, may to him be worth the hazard; "the forlorn hope" has sometimes gained an important victory.

Mr. Curling alludes also to the Epithelial Cancer, first, we believe, noticed by Rokitansky, as occurring in the large intestine, especially in the sigmoid flexure and rectum, and makes mention of two cases of this form of disease which have occurred in his own practice. He likewise calls attention to one symptom, which is also found in some cases of stricture with ulceration, and which may mislead the practitioner, viz: pain in the hip, accompanied with lameness to such a degree that the patient limps in walking.

The last two chapters respectively treat of the Impaction of Feces in the Rectum, and Anal Tumours and Excrescences. These occupy only a few pages, but contain many useful suggestions concerning the recognition and treatment of these morbid conditions of the part.

We have no hesitation in commending this little book; we think it must contribute to its author's reputation as a wise and careful surgeon. F. W. S.

ART. XXIV.—*On the Therapeutic Application of Electro-Magnetism in the Treatment of Rheumatic and Paralytic Affections.* By ROBERT FRORIEP, M. D., Public Professor of General Surgery in the University of Berlin, &c. &c. Translated from the German, by RICHARD MOORE LAWRANCE, M. D. London: Henry Renshaw, 1850.

THE above title would lead us to suppose that the affections treated of all belonged to the nosological classes of rheumatism and loss of nervous power; while, in the table of contents, they are all classed as rheumatic. It is doubtful whether this application of terms is correct in some of the cases cited, although, in others, it will apply when restricted to the chronic form of this affection, or perhaps, more properly to the sequelæ of this peculiar form of inflammation. "To find a new, and hitherto unobserved symptom in a complaint of such common occurrence, seems nearly impossible," observes the author. Nevertheless, "a constant and characteristic sign of rheumatic disease," which has never been considered of diagnostic value, but is easily recognized, and bears "exact proportion to the complaint," is to be observed in a peculiar effusion occurring in the cellular tissue, whether subcutaneous or elsewhere; not only as a product of the inflammation, but also as acting mechanically in prolonging the disease. It is to this condition that the electro-magnetic current has been applied, and the cases given are evidence of its value as a local stimulant in relieving the morbid condition. The exact value of the application, and the diagnosis, can only be appreciated by a perusal of the cases themselves; and they afford additional inducements for the use of a much-neglected remedy of considerable power in obstinate chronic affections, especially of a local character accompanied by nervous lesions. R. B.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Absence of the Pericardial Sac, the Heart lying in the Cavity of the Left Pleura.*—Dr. Baly exhibited to the Pathological Society of London (May 20, 1851) a specimen of this rare malformation.—The subject of it was a man, æt. 32, measuring about five feet six inches in height, and of rather feeble frame: he died the 17th of May, 1851, in Milbank Prison, where he had been confined since the 16th December, 1850. Previous to his committal to Knutsford Gaol, in November 1850, he had followed the calling of a gardener. For nearly three months after his reception at Milbank he remained under the ordinary discipline of the prison, working as a tailor, and taking exercise for an hour daily. When admitted to the Infirmary of the prison, on the 7th March, he complained of cough and diarrhœa, had lost flesh, and was found to be the subject of pulmonary consumption. On the 26th March, symptoms of tubercular peritonitis supervened, and his emaciation became more rapid: he died in a state of extreme exhaustion.

While under observation at Milbank Prison, he presented no appearance indicative of obstructed or disordered circulation, and suffered from no more dyspnœa than usually attends tubercular disease of the lungs. His pulse was always regular, and its number, except during the last few days of his life, not more than 92; and, on the occasion when his chest was examined, soon after his admission to the Infirmary, nothing abnormal was detected in the action and sounds of the heart.

After death, there was found extensive tubercular disease of both lungs, and general cohesion of all the abnormal viscera by firm false membranes containing innumerable tubercles. The right lung, also, was universally adherent to the reflected pleura. The left lung was adherent at its summit, but in the rest of its extent was free; and, when the sternum and cartilages of the ribs were raised, it was at once noticed that the heart, having no separate sac to enclose it, was in close contact with this lung, and had at the same time no abnormal connection with the diaphragm: the heart and left lung lay, in fact, in one serous sac, the membrane forming which was reflected upon the surface of either organ, constituting in the one case the pulmonary pleura, in the other the visceral pericardium. This serous membrane, traced in the horizontal direction, after lining the sternum and the ribs on the left side, covering the posterior and outer surfaces of the lung, and then its inner surface, was reflected at the root of the lung directly upon the left pulmonary veins, and thus reached the base of the heart. After investing this organ, and the vessels arising from and around it, to the normal extent, it passed forward to the sternum, being here separated from a corresponding layer of the right pleura only, by a thick layer of fibrous and cellular tissue. The part of the diaphragm on which the heart and the left lung rested, being covered with the same serous membrane, formed the base of the large sac in which they lay.

Beneath and behind the heart, the serous membrane, where it passed from the base of the heart to the diaphragm, formed a crescentic fold. This fold, thickened by fibrous tissues between its layers, arose on the right side of the ascending aorta, passed downwards to the right of the right auricle, and in front of the inferior vena cava, and, crossing behind the left auricle, terminated on the left pulmonary veins. The depth of this crescentic fold was greatest posteriorly, but did not there exceed three quarters of an inch, except close to the vena cava, where the finger could be passed into a pouch behind it to the depth of an inch and a half. Below, and to the right of this crescentic fold of membrane, which, there can be little doubt, was a rudiment of the pericardial sac, fungi-like processes of brownish and loose fat, like that which commonly occupies the anterior mediastinum, projected into the cavity of the serous sac.

Another peculiarity was, that the left phrenic nerve, entering the thorax in the normal situation, instead of passing down between the heart and left lung, crossed in front of the arch of the aorta to reach the septum, between the two pleural sacs on the right of the heart, when it passed downwards, and, reaching the diaphragm, took a direction towards the left side.

A third fact noticed was that a thin and fragile false membrane, evidently the product of recent inflammation, covered the inner surface of the left lung, and that a similar false membrane invested to some extent the corresponding left side of the heart; a slight adhesion, of small extent, and easily ruptured, also existing between the apex of the heart and the contiguous surface of the lung.

The visceral pericardium, or the serous covering of the heart itself, was generally smooth, thin, and free from white spots. The heart was of normal size, and its valves were healthy.

Cases of congenital absence of the pericardial sac are confessedly very rare. Only two seem to have been recorded as having occurred in this country: one by Dr. Baillie (in the Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, vol. i. p. 91); the other by Mr. T. B. Curling (in the 22d vol. of the "Med.-Chir. Trans.," p. 222). An exact account of a third case has been given by Breschet ("Répert. Gén. d'Anatomie," tom. i. p. 212); and references to a few others, less minutely described, and some of them not well characterized, will be found in Otto's "Pathological Anatomy" (transl. by South, p. 254).

In Breschet's case, and in Mr. Curling's, rudiments of a pericardial sac similar to those observed in the present instance existed behind the heart. In Dr. Baillie's case this appears to have been absent. In all three of these cases the left phrenic nerve took the abnormal course towards the right side of the heart, before descending to the diaphragm. And it may not be uninteresting likewise to notice, with reference to one suggested purpose of the pericardium—namely, the protection of the heart from inflammation which might otherwise extend to it from the lung or pleura—that while, in the present case, there were traces of recent inflammation of the serous membranes covering the contiguous surfaces of the heart and lung, in Mr. Curling's case there was a slight adhesion between the apex of the heart and the left lung, with partial thickening of the serous covering of both; and in Breschet's case were two slender adhesions between the heart and the diaphragm (see Mr. Curling's observations on this point, *loc. citat.* p. 229).

It remains only to state that, although the fibrous structure of the pericardial sac was to so great an extent absent, yet a thick fibrous stratum strengthened the serous membrane behind, and to the right side of the base of the heart, and descended to form with the tendinous portion of the diaphragm the same close connection which naturally exists between the fibrous pericardium and the central tendon of that muscle.—*London Medical Gazette*, July 4, 1851.

—

2. *On the Persistence of Vital Properties in Limbs in the state of Cadaveric Rigidity.*—M. Brown-Sequard forwarded a note in which he stated that he had recently found that limbs, in the condition usually known as that of post-mortem or cadaveric rigidity, may still be living—*i. e.*, they may cease to be rigid,

may re-acquire muscular irritability and sensibility, and may be moved by the power of the will.*

The following is an abstract of these researches:—

In the body of a guinea-pig which had been in a state of rigidity from ten to twenty minutes, he had divided the aorta and vena cava at the point of bifurcation of those vessels. This done, he had brought the distant portions of these vessels, by means of a quill or glass tube, into communication with the aorta and vena cava of a living animal of the same species. The blood of the living animal has thus been made to circulate in the lower limbs of the dead animal. At the end of about eight minutes, the cadaveric rigidity of the lower limbs had disappeared, and, two or three minutes later, movements have been excited by irritating the limbs or nerves.

It follows from this experiment that the nerves and muscles, having lost their excitability, may regain these properties under the influence of blood, even where the rigidity has lasted a quarter of an hour.

The same result has been obtained by a more easy experiment. Having cut the body of a guinea-pig into two at the level of the lower border of the kidneys, leaving no communication between the two halves, except by the aorta and vena cava, M. Brown-Sequard then tied the aorta immediately below the origin of the renal arteries. The muscular irritability gradually diminished little by little, and gave way to cadaveric rigidity in between fifteen and forty minutes after the ligature of the aorta. After the rigidity had lasted fifteen or twenty minutes, the ligature was relaxed, the circulation was re-established in the posterior segment, and the rigidity was observed to disappear gradually, the muscles and nerves resuming their excitability.

Lastly, in order to ascertain if voluntary movements can be restored to limbs that have been in a state of cadaveric rigidity, M. Brown-Sequard has tied the aorta immediately below the origins of the renal arteries in healthy rabbits. The sensibility of the posterior portions of the body has been lost in six, eight, or ten minutes; two minutes later all voluntary movement has ceased. The irritability has lasted an hour. Rigidity has supervened in from an hour to an hour and twenty minutes after the ligature of the aorta. The rigidity was permitted to continue for twenty minutes, and then the ligature was relaxed. The circulation, and with it the functions of the nerves and muscles, were re-established.

The author concluded with these propositions:—

1. That muscles are not necessarily dead because they exhibit cadaveric rigidity—that, if they are not actually alive, they have the faculty of living.
2. That want of circulation of the blood deprives the muscles and nerves of their functions: the restoration of the circulation restores these.
3. That, notwithstanding the duration of rigidity shall have been as long as twenty minutes, sensibility and voluntary movements may be restored.—*London Medical Gazette*, July 18, 1851.

MATERIA MEDICA AND PHARMACY.

3. *On Antiseptics.* By MM. Augend and Robin.—In a memoir recently transmitted from Constantinople to the *Académie des Sciences*, M. Augend details a great variety of experiments he has been making upon the comparative antiseptic powers of ether and chloroform, which show those of the latter to be pre-eminently superior. To completely prevent the decomposition of a piece of fresh meat, $\frac{1}{100}$th part of chloroform sufficed. Its vapour traverses the densest tissues. It does not coagulate albumen like creasote, and is not decomposed by the muscular fibre. The most obvious action of the chloroform

* It was stated by Dr. J. P. Kay, in 1834 (Treatise on Asphyxia), that limbs which had lost their muscular irritability might reacquire it by the injection of arterial or venous blood.

upon muscular substance and the fleshy pericarp of seeds and fruits is the production of an immediate contraction of the fibre or parenchyma, expelling the aqueous juices to the bottom of the vessel in which the experiment is conducted. M. Augend suggests, among various other applications, that this substance might be found of advantage when it was desired to preserve a corpse for a certain period for the purposes of legal medicine.

M. Robin has conducted numerous series of experiments upon the volatile compounds of carbon and hydrogen, which possess the power of preserving animal substances in spite of the presence of oxygen, as sulphuric ether, chloroform, naphtha, oil of pit-coal, &c. &c. These bodies and their vapours enjoy complete antiseptic power, the blood in fleshy substance being maintained in quite a fresh state. Water impregnated with the vapour of these hydrocarbonates possesses similar power.

Conducted by analogy of chemical composition, he has discovered another order of substances, possessed of a high degree of antiseptic power, viz., the binary compounds of carbon and some other metalloid than hydrogen. He has proved experimentally, that sulphuret of carbon, protochloruret of carbon, azoture of carbon, the Dutch fluid, and hydrocyanic acid, are, like the carburets of hydrogen, powerful preservatives of organic matters. The vapour of these substances, disengaged at the ordinary temperature in closed vessels, preserves such for an indefinite period. For the preservation of the colour of bodies, chloroform, protochloruret of carbon, and oil of pit-coal, are very superior in efficacy to bodies hitherto employed; but they are far from equalling hydrocyanic acid in this respect, the vapour of which absolutely prevents all physical alterations whatever. Nevertheless, in reference to the price of its production, the power and rapidity of its preservative action, no substance presents such great advantages as oil of pit-coal, the rectified allowing much less change of colour than the impure. M. Robin believes it may be advantageously employed for embalming, in the preservation of bodies for dissection or of anatomical preparations, in the tanning of leathers, for the destruction of insects that attack collections of natural history, trees, or seeds, and for the conservation of cereals and seeds in general.—*B. and F. Med. and Chirurg. Rev.*, July 1851, from *Gazette Médicale de Paris*, 1850, Nos. 46 and 48.

—

4. *On Local Anæsthetics.*—M. Aran has for some time been actively engaged in following up the experiments of the English and French observers upon local anæsthetics, and the following are the conclusions of his last paper read at the *Académie des Sciences.*

1. Local anæsthetic properties are found in all agents which have been recognized as possessing general anæsthetic ones, and in others of analogous composition, belonging chiefly to the series of chloro-hydrocarbons. 2. These local properties are not in direct proportion to the general ones, but rather to the fixity of the substance. The more volatile the body, the less is its local anæsthetic power, which explains the inferior degree in which sulphuric ether possesses this property as compared with other anæsthetics. 3. A great number of anæsthetics produce irritation of the skin, and chloroform is remarkable in this respect. 4. The agent which is the most convenient to manipulate, the most certain in its action, and the least irritating to the skin, is the *chlorined hydrochloric ether* (*éther hydrochlorique chloré*) recently introduced by M. Mialhe as an advantageous substitute for the "Dutch Liquid," under which name two fluids of very different power are on sale. The *sesquichloride of carbon* may also be so employed; but while the complete effect of the former is obtained at the end of some minutes, the sesquichloride requires at least two hours. 5. In order to obtain satisfactory anæsthetic effects, small quantities of these two substances suffice. From 15 to 30 drops of the ether may be applied directly to the part, or upon moist linen, covering it over to prevent evaporation. Or an ointment may be composed of 4 parts to 20 of lard, or of 4 parts of the sesquichloride to 33 of lard. 6. Anæsthetic agents, and especially the chlorined ether, produce, after an interval of from two and a half to ten minutes, a complete cessation of pain, and after a time, varying from five to fifteen minutes, a cutaneous insensibility that may be easily estimated by means of a needle.

7. The insensibility is not limited to the point at which the application has been made, but extends to the deep-seated parts themselves; and in this way by applying it to the skin we relieve the pain of muscular organs, nerves, articular cavities, and the viscera contained within the thorax and abdomen. Moreover, the anæsthetic effect extends for a variable distance around the point of application, rarely less than to two square inches. 8. The duration of the insensibility varies according to the nature of the agent employed, the quantity applied, and the duration of the contact. It lasts only from one-half to an hour, when the anæsthesia is produced in the physiological condition of parts; but it continues much longer when the application has been made in order to produce insensibility to pain—*analgesia*. 9. In a medical point of view, the number of cases in which local anæsthetic applications may be employed is truly immense. The following proposition is the result of a very multiplied experience: *Whenever there exists an acute pain in any part of the economy, whether such pain itself constitutes the entire malady, or only forms an integrant and principal part of it, we may, without any inconvenience resulting, relieve the patient of it for a period more or less long, by one or several local anæsthetic applications.* The employment of these agents in *rheumatic muscular pains*, and in *neuralgic pains*, has become too common to need additional illustration; but it may be observed that the latter do not become *cured* unless they are very recent. M. Aran is, however, especially desirous of calling attention to their great utility in *articular diseases*. In *subacute* and *chronic articular rheumatism*, they remove pain in a few minutes. They give great relief too in *subacute* and *chronic arthritis;* but here they are especially useful in favouring the application of certain surgical procedures, as *e. g.* compression, extension of contracted joints, &c. It is, however, in *acute articular rheumatism* that he has derived really surprising benefit from these means. The ease obtained restores to the patient temporarily the use of his limbs and his sleep; and the duration of the disease becomes much abridged. This medication may be combined with venesection or any other mode of internal treatment. By the same means he has treated *lead colic*, *nervous*, *uterine*, and *nephritic colics*, and even the pain attendant upon *puerperal peritonitis*, *pleurisy*, and *pericarditis;* and in all, when complete and definitive cessation of pain has not resulted, at least a degree of amelioration and relief that could scarcely have been hoped for has been obtained.—*Brit. and For. Med.-Chirurg. Rev.*, July 1851, from *L'Union Médicale*, 1850, No. 154.

—

5. *On the best Mode of preparing the Juice of Dandelion, so that it shall continue in perfect preservation throughout the year.*—The following mode of preparing the juice of dandelion, advised by Mr. Donovan (*Dublin Medical Press*, June 11th, 1851), is worthy the attention of pharmaceutists:—

"The dandelion abounds in a milky juice; it has no smell: its taste when recent is very bitter, the roots more so than the leaves. By drying, the bitterness is destroyed, as happens to many other vegetable substances. I have observed that the juice of the recent roots and herb loses its bitterness by long boiling, and that it even assumes a saline sweetish taste, such as is observable when it is extracted from plants dug during the cold months of the year. The change happens more easily in the juice of the leaves than in that of the roots; yet a decoction of the roots long boiled retains but little of its bitterness. The recent juice of the roots, if evaporated to dryness and restored to its original bulk by the addition of water, will be found by far less bitter than before. The solid extract is therefore a bad preparation, and, as Lewis observes, becomes still worse by being kept. Indeed, the extract of commerce has but little bitterness, and is often so sweet as to suggest a suspicion that it contains a foreign admixture: I have sometimes thought that it was the sweetness of Spanish liquorice. Its colour, which ought to be brown, is generally black.

"The bitterness is due to the presence of a proximate principle said to be crystallizable. When this has been impaired or removed by boiling, a sweetish, saline, and even acidulous taste is discoverable: it naturally belongs to the juice; for, besides the bitter principle, it is known to contain phosphates, sulphates, muriates, and tartaric acid, or a bitartrate, which are the useful ingre-

dients; along with uncrystallizable sugar, gum, inulin, caoutchouc, and some other matters of no medical importance. The bitter principle and salts are the constituent ingredients which claim the attention of the practitioner; and it is to their preservation, by whatever process the juice is prepared, that the apothecary should devote his attention; for, as Dr. A. T. Thomson truly observes, 'much depends on the nature of the preparation.'

"Keeping the foregoing observations in view, the best mode of conservation is obvious. The whole herb as soon as dug is to be washed immediately, well pounded, and the juice extracted by means of the press. Delay in pounding the roots will soon begin to impair their bitterness; and even the expressed juice will speedily begin to change unless put in process of preservation very soon after expression. When the juice has been pressed out, the marc, still containing valuable matter, is to be well mixed with as much water at 200 deg. as will bring the whole to about the consistence of a pulp. After standing two hours, the liquor is to be pressed out, added to the former product, and the mixture is to be very slowly evaporated in a wide earthen vessel, with constant agitation, until it be reduced to one-half. We now have the salts (which in a medical point of view are of great importance) and other ingredients in a much more concentrated form than in the original juice: but the bitter principle has been somewhat impaired in efficacy during the evaporation. Even if this deterioration had not taken place, the juice does not in its natural state contain a sufficient ratio of the bitter principle to act with adequate effect as a tonic when so moderate a bulk of the liquid is administered as is convenient or suitable. On this account a quantity of the roots without leaves, equal to the weight of the whole herb previously employed, must be pounded and expressed. This bitter juice, which is very small in quantity, not in some seasons more than a gallon from 112 pounds, is to be laid aside until the residual marc, from which it has been pressed, has undergone a new process, which is as follows: The mixture of juice obtained from the whole herb and the evaporated infusion of its marc is again to be brought to a boil, and at that temperature is to be infused on the marc of the roots; the temperature will thus be reduced below the injurious degree, but will be still sufficient for extraction of the bitter. When cold, the liquor is to be strongly pressed out, and mixed with one-sixth of its total measure of spirit of wine. The mixture is to be poured into common quart bottles, but they are not to be entirely filled. Appert's process, somewhat modified, must now be resorted to. A large shallow vessel containing cold water is to be placed on a fire: the nearly filled bottles are to be immersed in the water as high as the liquor within: the water is to be slowly brought to about 180 deg.: the bottles are to be withdrawn, and the reserved juice obtained from the roots is to be added to each in equal quantities. These quantities ought to fill the bottles so high in the neck that when the corks are driven in there will be the smallest possible intervening space. The corks being cut off close to the glass, the mouths are to be sealed with hard bottle wax: and the bottles set by, inverted, in a cool place.

"The bitter principle, obtained in the second part of the process, having been scarcely exposed to heat, is as perfect as it existed in the roots. Heat is highly injurious to the active principle of various vegetable substances. The root of arum maculatum is poisonous and so acrid that it will blister the skin; but by boiling or even drying it becomes harmless, and in that state is by some nations used as food. Mezereon bark in its recent state also blisters the skin, but by the moderate heat of drying it loses this power. The seeds of palma Christi are acrimonious and violently cathartic; yet when boiled they are used as an article of diet. The root of the cassava plant, which, like dandelion, yields a milky juice, is in its natural state a violent poison, but when boiled it becomes harmless: the leaves, equally poisonous, are by heat rendered innocuous, and are eaten as a culinary vegetable: tapioca, the food of the invalid, is obtained from the roots. The effect of heat on onions and garlic is known to every one.

"The quantity of spirit of wine here made use of, although it conduces to the preservation of the juice, is by itself insufficient: hence the necessity of Appert's process. Each ounce will contain about one drachm of spirit of wine; more might be disagreeable or inexpedient.

"By the foregoing process, we have dandelion juice in a degree of perfection not very inferior in qualities to that which exists in the plant in its natural state; and in a condition to retain its virtues throughout the year."

6. *On the Galvanic Cataplasms of Prof. Recamier.*—Dr. Tilt read to the Medical Society of London, May 31, 1851, a communication on this subject.—After some preliminary observations, Dr. Tilt stated that he wished to draw the attention of the Society to the particular mode of employing electricity, in which continued currents are generated by the contact of metals, by which means a large quantity of electricity is obtained at a low tension.

There are many machines constructed on that principle; but they are all ponderous complicated machines, liable to get out of order, and therefore requiring the guidance of some one who well understands their action. The feelings of awe, too, with which the patient generally beholds them, interfere frequently with the effects we desire to obtain. Would not, then, a milder application of the same agency, by permitting its prolonged employment, enable us to do more good than could be effected by the previously employed energetic modes of application? This simple question must have suggested itself to many, and it has suggested itself to a fellow of this Society, who has given great attention to the therapeutical influence of electricity. "I was very sanguine (says Dr. Golding Bird) that the current excited by a simple pair of zinc and silver plates, similar to those we employ to excite the contractions in a frog, would be found of great value in practice." But, to obtain an action, Dr. G. Bird thought it necessary to remove the cuticle from the skin; and then he found that the most oxidizable of the two metals produced sloughing of the skin, or, in other words, the electrical moxa of which he had shown the utility.

Previously to this, Mr. Spencer Wells had ascertained that the removal of the cuticle is not necessary; and that, by applying to the skin, previously moistened by diluted vinegar, two plates, one of silver and the other of zinc, connected by a silver wire, a marked electrical action was obtained; disordered functions of a particular nerve were restored to their normal state, and ulcerated surfaces were rapidly healed.

For many years Professor Recamier had made use of electricity by means of the energetic apparatus usually employed; and it may perhaps be remembered that, a few months ago, he presented to the French Academy of Medicine some remarks on a new mode of supplying electricity, by what he called galvanic cataplasms, consisting of filings of copper and zinc enveloped in cotton wool. Lately he had improved on this rather clumsy contrivance, and he had sent Dr. Tilt the little apparatus which he had now the honour of submitting to the inspection of the Fellows. Each of these cataplasms, or disks, if a scientific term was preferred, is a galvanic pile composed of twelve couples. The couple is formed by a ribbon of zinc and copper, and each couple is separated by a piece of flannel. On the coloured side is cotton wool; on the other, a piece of gutta percha tissue to insulate the apparatus. The only difference between the two disks is, that, in the pink one, the copper stands first, while the zinc comes first in the one covered with blue. The electrical force generated in the apparatus is sent through the copper rings, to which the insulated copper wire can be attached, when the more energetic effect of the two cataplasms is required. In some people, the acid perspiration of the skin is sufficient to increase the intensity of the electric action; but more active effects are produced by wetting the flannels with diluted vinegar, or a weak solution of common salt, as is seen by the action of the apparatus on the electrometer. When one of these cataplasms is tightly bound to the surface on the skin, it gives an unusual sensation of warmth; a pricking sensation is felt, and the skin is made red, when two of the cataplasms are connected by the wire, and applied to the same surface, but at some distance from one another. A stronger effect is produced when one is applied to the organ we wish to influence, and another to the opposite portion of the spine. Such are the modes of application; and it may be worn day and night without inconvenience, though, in ordinary cases, it is only under application at night. In what cases this apparatus has been, or may be expected to be useful, is a question which now

naturally suggests itself. In the hands of Professor Recamier, it once brought on menstruation before the usual time. He therefore intentionally applied it for that purpose, and with success in cases of chlorotic amenorrhœa. He is trying it in such cases of sterility as cannot be accounted for by any disease, but which seems to depend on a defective ovarian action; and, amongst other cases, on an illustrious lady, whose barrenness menaces to extinguish one of the oldest dynasties of Europe, and also in the case of a Russian princess. In this last case, menstruation, which formerly lasted but thirty-six hours, now continues for six days. This is the first effect; but time alone can show whether sterility will be removed in this or the other cases. Dr. Tilt thought it would help to cure some of those tedious cases of chlorosis, where a girl eats heartily, takes plenty of sleep and exercise, has nothing on her mind, and still derives but little benefit from good food and judicious treatment. In hopes that this mild electric action may take effect on the ganglionic nervous system, and give a spur to defective nutrition, he has lately applied one of the disks to the epigastric region of a patient, and the other to the spine. Besides these trials, Professor Recamier has applied these galvanic cataplasms, with marked and rapid success, in the treatment of rheumatic and nervous pains; in one obstinate case of constipation of some years' standing; in a case of asthma; and a patient suffering from angina pectoris was benefited, but not cured. Dr. Massé, and several other medical men in Paris, have found them successful in similar cases, as you will see by perusing the pamphlet Dr. Tilt presented to the Society. In this communication he has merely stated the results said to have been obtained by his venerable teacher; and, if this had not been the last meeting of the Society, he would have delayed drawing the attention of the Society to the subject until he had been able to test its utility by his own observations. He thought, however, the matter sufficiently deserving of consideration; and if, on account of the harmless appearance of the apparatus, the Fellows should be tempted to consider it ineffectual, he would beg to refer them to an authority already quoted, who says: "From what I have seen, I am fully convinced that a feeble current, if kept up for a long time in certain forms of paralysis (care being taken that the positive fluid traverses the limb in the direction of the nerves), would prove the most important mode of applying this remedy with success." It seemed to Dr. Tilt that Professor Recamier's cataplasms would be useful; and, as it was impossible for the Fellows to give them a trial without knowing where to get them, he concluded by informing them that the apparatus might be obtained of Mr. Joseau, of the Haymarket, or of Mr. Bucklee, of 86 New Bond Street, Oxford Street, at the cost of 15*s.*—*London Med. Gaz.*, June 1851.

MEDICAL PATHOLOGY AND THERAPEUTICS AND PRACTICAL MEDICINE.

7. *Lungs showing the Arrest of Phthisis in the Third Stage of the Disease.*—Dr. QUAIN presented to the Pathological Society of London, lungs showing the arrest of phthisis in the third stage of the disease.—A female, in May 1848, when thirteen years of age, was admitted an out-patient at the Brompton Hospital. She was very delicate, had lost flesh, and was suffering from severe cough, shortness of breathing, &c. Her illness had commenced with influenza in the early part of the preceding winter; she had also suffered from an abscess in the right arm. She had been recommended cod-liver oil, but was unable to keep it on her stomach. There was no predisposition to phthisis, and she had not then had hæmoptysis. Since that time, a younger sister has shown unequivocal evidence of phthisis, and an older sister has now become delicate. A note, taken shortly after her admission, states that "there is extensive consolidation at the apex of the left lung, and some deposition at the apex of the right," shown at the one side "by decided dullness, bronchial

breathing, and bronchophony; and, at the other side, by a feeble inspiratory, and a prolonged louder expiratory murmur."

A mixture, in which a drachm dose of cod-liver oil was diffused by means of liquor potassæ in mucilage, and a syrup composed of mucilage, syrup of squills, and a minute dose of morphia, was prescribed. The oil mixture was taken without disturbing the stomach, and she kept her ground. Examined in August, she is stated to have lost four pounds in weight, and crepitation is heard over the left apex; nothing additional at the right apex. Iodine counter-irritation was then applied. In the beginning of September she had profuse hæmoptysis, and subsequently a free puriform expectoration.

An examination, made in the course of this month, when she was able to attend the hospital, showed the existence of a large cavity, where the consolidation and softening had been previously observed. The dose of the oil was subsequently increased, first to a drachm and a half, and then to two drachms, with advantage; for, in the end of the following December, it is recorded that "she gains strength, and coughs but little." She did not attend during this winter, but received her medicine by her mother, and did well. In April 1849, she had an attack of influenza, from which she soon rallied.

In the following June, the record is that "she has not lost ground, though she has not gained in weight since her admission a year ago: there is loud pectoriloquy, cavernous breathing, and gurgling at the left apex, and loud expiratory murmur at the right."

At the end of July the report is, "she looks well; coughs only in the morning."

In August an examination showed "flattening of the chest over the apex of the left lung. The respiration there, though cavernous, is not loud. The pectoriloquy is very distinct. The respiration at the right apex is somewhat puerile." During the winter (1849-50) she continued the remedies.

In February, her appetite had failed, and a mixture of infusion of gentian and bicarbonate of soda was ordered once a day. From this she derived so much benefit that it was continued three times daily, and she was able to take the simple aniseed oil in half-ounce doses.

The following June it is noticed that she has had an attack of nettle-rash, but is still gaining strength, grows tall, and coughs but little, and only in the morning.

This improvement continued; and it is noted that last October she came to the hospital, having been for some time in the country, looking extremely well. Her weight, which at one time had been as low as four stone two pounds, is now four stone nine pounds. She had scarcely any cough; her appetite is good. She is free from suffering of any kind. Examination of the chest shows remarkable flattening and contraction over the apex of the left lung. There is very evident dullness in this situation, and the mobility here is as nine to thirty-two of the opposite side. The respiration is of a sharp whiffing character, with slight crepitus. At the opposite side the respiration is loudly puerile, and percussion shows the right lung extending across the sternum to the left side. At the summit of the left lung posteriorly the respiration is scarcely audible. The dullness here is more decided than in front. The heart is seen and felt to beat distinctly from between the second to the fourth left costal cartilages. The action of the heart in this situation had been a source of some annoyance to her. From this time (October) to the commencement of last March, this improvement continued. Her cough had nearly if not altogether disappeared. She continued the gentian with soda, the cod-liver oil, and the counter-irritant occasionally. At the beginning of March, during the prevalence of the influenza, she was attacked by the gastric, and not the pulmonary, complication of the disease. It commenced with bilious vomiting, followed by diarrhœa, great prostration, and rapid collapse, from which she died on the fourth day.

The body was well proportioned, and showing a very fair amount of fat in the subcutaneous tissue. The right lung was seen to be very voluminous, and extending across nearly as far as the left margin of the sternum. There was no appearance of the left lung in front, but its place was occupied by the heart and pericardium drawn upwards and to the left side, and the walls of the apex

of the chest falling inwards and downwards. The heart was healthy, and rather large for the size of the body. The left lung was found much diminished in size behind it. The lung was adherent more especially at the apex, which was covered posteriorly by a mass of solid fibrinous tissue, corresponding to the seat of dullness and feeble respiration previously mentioned. Very nearly the whole of what had been the upper lobe of this lung was occupied by the remains of a cavity irregularly divided into two, by one of the bands so frequently seen in phthisical cavities. The entire cavity was about the size of a large walnut. It contained about half a drachm of a thin whey-like fluid, with which were mixed particles of whitish coagula. The walls were formed by condensed pulmonary tissue, varying in thickness from less than a line to a quarter of an inch, and in some points puckered and contracted. The air-cells and small bronchi were distinctly visible, under the microscope, in this tissue, which was separated from the contents of the cavity by a wall or membrane composed of firm filamentous tissue and granular cells. This membrane had much the appearance of a mucous membrane, but it was not examined sufficiently soon after death to be able to trace the presence of an epithelium. The cavity communicated with the left bronchus by an orifice which would admit a crow-quill, situated midway between the top and bottom of the cavity. There was a good deal of healthy respiratory tissue in the lower lobe of this lung; but there were scattered through its substance six or seven points of condensation, such as are hereafter described existing in the right lung. The right lung was large, and the air-cells partook of its character. In water it displaced a quantity which measured twenty-three ounces, whilst the left displaced but nine ounces. The apex was remarkably puckered; and on cutting through this puckering the tissue of the lung was found to be traversed by short fibrous bands, between which appeared points of softish pale-yellow tubercle. A little lower down in the centre of the upper lobe a mass of soft tubercle, about the size of a small hazelnut, was found. It was enclosed in a cyst, and consisted almost entirely of fatty granules and cells containing similar particles. In the other lobes, several consolidated points were found—the largest smaller than last described, and none so fully formed. They appeared in some places to consist merely of condensed tissue; in two there was an appearance of yellow, firm tubercle; and in two, small calcareous particles. In neither lung was there the least appearance of recent tuberculous deposit. The other organs were healthy; the kidneys were large. There was no disease of the intestine beyond congestion, which in some parts was very distinct.

This case affords an additional illustration of the great extent to which the ravages of pulmonary phthisis may proceed, and its progress yet be stayed. Such cases were, happily, now met with more often since cod-liver had come into use: still Dr. Quain did not know of any case which afforded, by the evidence of post-mortem examination, so striking a result. This case was also interesting from its throwing light on the nature of the puckerings so constantly seen. Some observers were disposed to regard them as being independent of tuberculous deposit. In this case it was evident that they were due to the previous existence of this deposit, which, in fact, had been recognized there during life, and traced after death.—*London Med. Gazette*, June 1851.

—

8. *A Statistical Report upon Disease of the Heart, derived from a consideration of all the Cases admitted into St. George's Hospital during the last two years and a half.* By Dr. BARCLAY. ("Proceedings" of the Royal Med. Chirurg. Society, June 24, 1851.)—Rheumatism is first considered as one of its causes. Divided into two nearly equal classes—those really inflammatory or acute, and those less so, or sub-acute—the former class is found to contain sixty-seven cases with cardiac lesion, sixty-four without, and twenty-one doubtful. Endocardial murmur is found not to be certain evidence of disease, even in the most acute cases. Females are slightly more liable to acute rheumatism than males, but less liable to a recurrence of the disease. Females are more decidedly liable in a larger proportion to cardiac complication, and this is especially proved by the existence of friction-sound in the proportion of three females to two males. Cardiac complication exists eighteen or twenty per cent.

more frequently in subsequent attacks than in primary ones. It is in the proportion of three to two of all the cases up to the age of twenty-five, and falls very rapidly after that age. The cases of sub-acute and chronic rheumatism furnish no examples of recent inflammation of the heart, but a considerable number of cases of old disease. So far as could be ascertained, these were almost all traceable to previous acute attacks, and were only about one-third of the cases which had previously suffered from acute rheumatism. The post-mortem appearances of recent inflammation are found associated with acute rheumatism, with disease of the kidney, with inflammation of the peritoneum and pleura, and with old disease of the heart, especially when hypertrophy existed, and with turbulent action during life. The cases of old disease of the heart are divided into sixty-one rheumatic, seventy non-rheumatic, and sixty-nine doubtful. They show a very considerable preponderance of males, especially among fatal cases. Up to the age of twenty, almost the whole, and even as far as thirty, more than half the cases are associated with acute rheumatism. In the next twenty years, the non-rheumatic almost double the rheumatic cases, and after fifty, there are scarcely any derivable from rheumatism at all. The duration of rheumatic cases, dating from the first attack of acute rheumatism to death, is generally much longer for females than for males, varying in the latter from four to six years; in the former, from twelve to sixteen years. Four out of seven fatal cases of acute rheumatism, and twelve out of eighteen of older standing, are associated with pericarditis, which is always severe and extensive; but universal adhesion is neither the constant nor even the common result of rheumatic pericarditis, and it exists in cases where the previous existence of rheumatism is altogether denied. In valvular disease, there are eighteen rheumatic cases, twenty-three non-rheumatic, and twelve doubtful. The recent cases are all examples of inflammation of the mitral valve. When old and recent disease exist together, and when old disease is seen in different stages, the mitral valve generally appears to have been first attacked, and the aortic secondarily; and hence the preponderance of double valvular lesion in rheumatic cases seems to be due to renewed inflammations at distinct periods. Inflammatory thickening occurs also in several cases in which there had been no rheumatism. Disease of the kidney is associated with two cases of simple recent fibrinous deposit on the valves, and three of recent pericarditis, in which no other cause was known to have been in operation. It seems questionable how far this can be taken as a cause of great thickening of the valves, or of an adherent pericardium. Disease of each set of valves seems to produce, in nearly equal proportions, hypertrophy and dilatation, but aortic regurgitation especially the latter; atheroma of the aorta, more commonly hypertrophy; adhesion of the pericardium, chiefly dilatation. Disease of the kidney is associated with an immense majority of the cases of hypertrophy, and similarly of all the cases of disease of the kidney; more than a third presented on post-mortem examination more or less of hypertrophy of the heart. A table is appended, in which the post-mortem appearances are arranged, of all the cases in which clinical history threw any light on the disease of the heart found after death.—*Lancet*, July 12, 1851.

—

9. *On Anasarca in Disease of the Heart.* By M. Chomel.—The progress of infiltration is ordinarily slow and progressive in affections of the heart; but, nevertheless, nothing is more common than to meet with individuals among the working-classes, who, while presenting the appearance of health, and without having manifested any sign of disease, are seized with anasarca, the physical and material signs of cardiac alteration not being present, or only, at all events, to a very slight degree. This is because there are causes prevailing in this class of society—such as excess of labour, fatigue, watchings, misery, drinking—which, in a measure, precipitate the course of the disease. These causes come in addition to the natural influence of the disease; and the anasarca appears at a period when without these it would not have manifested itself. So, when these causes are removed, and the patient is kept at rest, and sheltered from the unfortunate conditions that have given rise to so serious a complication, the œdema diminishes daily, and the patient soon leaves the hospital be-

lieving himself cured. New exposure to excesses, fatigue, or misery, reproduce the anasarca, which may be again dispersed, and that for several times; but after a certain number of such attacks, it in the end becomes permanent.

Frequently the appearance of an acute anasarca throws a ray of light on obscure and embarrassing cases, indicating in the great majority of cases an acute disease of the heart. Doubtful endocarditis and pericarditis are often thus revealed to the observer by general œdema. M. Chomel thus considers that in the case of anasarca coming on, when we can discover neither change in the blood nor albumen in the urine, we are authorized in admitting the existence of disease of the heart, or large vessels, even when all material signs of this affection are completely absent.—*British and Foreign Medico-Chirurgical Review*, July 1851, from *L'Union Médicale*, 1851, No. 26.

—

10. *Cases in which there was unusual Difficulty in the Diagnosis of Pleuritic Effusions.* By T. A. Barker, M. D. ("Proceedings" of Royal Med. Chirurg. Society, May 27, 1851.)—The first case related by the author was one in which there was extensive emphysema of the left lung, which had encroached greatly on the right side of the chest, pushing the heart and mediastinum beyond the mesial line. The right lung, which was closely adherent to the costal pleura, was reduced to about a fourth of its usual size, was exsanguine, and contained no air, resembling a lung compressed by effusion in the pleura. In consequence of these changes, no respiration could be heard in the right lung during life: the right side of the chest was universally dull on percussion, and the patient could only lie on the right side or sit erect. Along with these symptoms were others closely resembling those which usually attend hydrothorax; and the dyspnœa and symptoms of approaching apnœa being very urgent, the author thought himself justified in having a very fine trocar introduced into the chest, in order to ascertain positively whether there was fluid. No inconvenience resulted from the operation, and the symptoms were soon afterwards explained by the discovery, on post-mortem examination, of the very unusual state of parts above described.

The next case was one in which, without any of the general symptoms of pleuritic effusion, it was discovered, by auscultation, &c., that there was no respiration going on in the posterior third of the left lung. In four days the person died. The lungs were healthy; but there was extensive effusion, confined to the back part of the chest by a very narrow line of adhesion, extending from the upper and back part of the chest to the diaphragm, half way between the ribs and the sternum. The author referred to three other cases which he had seen, in which the pleuritic effusion had been limited by adhesions in the same position and precisely similar; only one of these had been seen by him during life, and in that the symptoms closely resembled those in the case last related. Two other cases were shortly alluded to, in which there was emphysema to a considerable extent; but respiratory sounds could be heard in every part of the affected sides, in consequence of the lung being kept partially in contact with the ribs by mucous adhesions, forming several separate cavities in which the purulent matter was contained.—*Lond. Med. Gaz.*, June 1851.

—

11. *Treatment of Erysipelas by the Muriated Tincture of Iron.*—Dr. G. Hamilton Bell, in a paper read before the Medico-Chirurgical Society of Edinburgh (April 10th, 1851), and published in the *Monthly Journal of Med. Sci.* for June last, extols the efficacy of the muriated tincture of iron, in the treatment of erysipelas, a mode of treatment which he has resorted to, he says, in every case of the disease he has attended for upwards of a quarter of a century, without having in a single instance failed of success.

The first object is, he says, to have the bowels freely acted on, and then he administers the tincture in the following mode: "If the erysipelas be mild, fifteen drops of the muriated tincture of iron are administered in water every two hours until the disease is completely removed. When the attack threatens to be more severe, the dose of the tincture is increased to twenty-five drops every two hours, and persevered in night and day, however high the fever and delirium. The

only local applications I ever find necessary, are hair powder and cotton wadding. While I depend for the removal of the disease on the chalybeate, it is necessary that the bowels should be attended to throughout the treatment."

Several cases illustrative of the value of this mode of treatment are related.

Dr. C. Bell also addresses his testimony in favour of this treatment, and states that he has "prescribed it (the muriated tincture of iron) both in the idiopathic form of the disease, and in that consequent on external injury, with the most satisfactory results; and I have found it equally efficacious at every period of life, from early infancy to advanced age. It not only removes erysipelas in a remarkably short time without weakening the patient, but it effects such an improvement in the system, that those who are subject to periodical attacks of the disease are rendered much less liable to have a return.

"The beneficial effects of this medicine are so immediate and invariable in the common forms of erysipelas, that I feel convinced, were it given with boldness and perseverance in puerperal fever, which is now generally admitted to be analogous in its nature, and frequently accompanied by erysipelatous inflammation on the surface of the body, many valuable lives might be preserved.

"In pursuing the chalybeate treatment of erysipelas, I consider it of much importance to bring the system rapidly under its influence, in order to effect a speedy removal of the disease. I have therefore been in the habit recently of giving much larger doses of the tincture than I ventured to prescribe at first. It is a remarkable circumstance in the exhibition of this valuable remedy in the erysipelatous diathesis, that although given in much larger and more frequently-repeated doses than have been recommended in our dispensatories, it never produces headache, and when this symptom is present it quickly relieves it; at the same time, it reduces and regulates the pulse: thus showing that in this state of the system, it has a soothing and sedative, as well as alterative effect."

He particularly calls attention to the advantage of this mode of treatment in infantile erysipelas, and also in that form dependent upon external injury.

---

12. *Cod-Liver Oil in Gaol Cachexia.* By Caleb Rose, Esq.—From the extensive trial which has been given to cod-liver oil, the profession is now able to form an opinion of the value of this medicine in certain diseases; and the author believes he is right in stating that those who have had large experience in the use of the oil esteem it a medicine of great utility. The diseases in which cod-liver oil has been found most beneficial are those which are termed scrofulous; and the author has found it so useful in a particular form of scrofula, that he has thought it might not be uninteresting to record the result of his experience in this form of disease. The form of scrofula to which he alludes is that to which prisoners are liable who have been for some considerable time confined in prison. Dr. Baly, in a very interesting article in the "Medico-Chirurgical Transactions," has shown that amongst prisoners who undergo a long term of imprisonment there is a high rate of mortality from tubercular diseases. In the last seven years the author has seen several cases of this scrofulous cachexia amongst the prisoners confined in the prison at Swaffham; and it appears to him to be different from the ordinary forms of scrofula met with in general practice. The men who have been the subjects of it, have not been robust at the time of their entrance into the prison, but they were not at this time apparently suffering from scrofula or any other disease. They had all been in prison six months before symptoms of scrofula appeared; most of them eight months; and their term of imprisonment was twelve months, and in one case, the author believes, two years. The symptoms of the disease are these: The man is observed to look paler and thinner than usual; he is very much depressed in spirits; has no appetite for his food; sleeps badly at night, and at that time, also, frequently has profuse perspirations; there is slight diarrhœa; the pulse is quick, irritable, and feeble. With those symptoms, the author has in every case found some of the cervical glands more or less enlarged, and, moreover, they continue to enlarge very rapidly. In the first five years, three of the men died in prison, two of very rapid phthisis (one of them of sudden and large hæmoptysis), the third of tubercular peri-

tonitis. The others who were seriously affected with this scrofula were discharged from prison before their proper time, and, I have since learned, recovered speedily after their liberation. Those who suffered in a minor degree were carried on to the end of their term of imprisonment by care and indulgence. Rather more than two years since we began to treat these cases with cod-liver oil, and with the best effects. As soon as a prisoner begins to show that marked deterioration of general health which is so likely to end in the development of scrofula, he is put upon the oil; and in every case the author has seen the man gain colour and flesh, and become restored to health. The two men who first took the oil had the cervical glands much enlarged (in one of them suppurating), and as they had still to remain some months longer in prison, it was thought that they must have been discharged before the end of their term; however, after taking the oil a month they improved steadily, and eventually left the prison at their proper time, in as good health as when they entered it. Since these two cases there have not been any so bad, as the oil has been administered in good time to those men who have shown that deterioration of health which appears to be the commencement of scrofula; and certainly their health has apparently been entirely restored by this valuable medicine.—*Ranking's Abstract*, vol. xiii., from *Prov. Med. and Surg. Journ.* Nov. 27, 1850.

[Dr. GIVEN has also extensively employed the cod-liver oil in the Eastern State (Pennsylvania) Penitentiary, for gaol cachexia, and, he informs us, with great advantage. We hope to be able to present the results of his experience in the next number of this Journal.]

—

13. *Kousso.*—Dr. CRISP mentioned, at the recent anniversary meeting of the Prov. Med. and Surg. Association, four cases of tænia solium, in which he had used the kousso. Two were cured, and the other two were failures. He questioned whether it were worth more than turpentine, except that it was milder in its action.—*Med. Times*, Aug. 16.

—

14. *Case of Epilepsy treated by Tracheotomy.* By W. H. CANE, Esq. ("Proceedings" of Royal Med. Chirurg. Soc., June 24).—Dr. Marshall Hall had suggested on several occasions, and especially in a conversation with Mr. Cane, that as the attack of epileptic or other *convulsion* implied closure of the larynx, with expiratory efforts, the attack of convulsive epilepsy would be prevented by tracheotomy. Mr. Cane was summoned, on Feb. 1, 1851, to the case of a boatman, aged twenty-four, who had become subject to violent fits of epilepsy, one of which had just occurred in so extreme a form as to leave him in a state of deep apoplectic coma and asphyxia, inspiration being performed only "by seldom and short catches, whilst the veins of the head and neck were everywhere visible and greatly distended." This state had continued nineteen hours. "Feeling convinced," Mr. Cane observes, "that the patient must shortly expire, and that the root of the evil was in the closure of the larynx, I at once proceeded to open the trachea, a matter of no small difficulty, on account of the twisted state of the neck, the engorged state of the vessels, and the constant action of the muscles. The operation of tracheotomy was performed, and the tracheal tube is kept in the trachea to the present time. The relief to the patient was immediate; the air passed into the lungs, the state of spasm subsided, with the turgid condition of the head and neck, and the patient soon recovered his sensibility. This was not the only gratifying result; although the poor man had experienced his epileptic seizures in increasing violence during seven or eight years, and recently thrice a week, he had, on April 1st, during two months, had no return of them. More recent accounts of the patient, who is now in Staffordshire, confirm the former report; the tube is still kept in the trachea, and the epileptic seizures have not recurred.—*Lancet*, July 12, 1851.

—

15. *On the Causes, Consequences, and Treatment of Inflammation of the Veins.*—HENRY LEE, Esq., in an interesting paper in the *London Journal of Medicine* (March and July 1850), endeavours to establish the following points in reference to the pathology and treatment of inflammation of the veins:—

1st. That inflammation, both of the veins and of the capillary vessels, usually depends upon irritation, communicated to them through their contents.

2dly. That pus is capable of producing such irritation when detained in contact with the lining membrane of the veins; but that it may be conveyed along their channels, without leaving any trace of its passage.

3dly. That pus, under ordinary circumstances, cannot circulate in living vessels, in consequence of its power of determining the coagulation of the first portions of the blood with which it is brought in contact.

4thly. That when pus is carried along a vein, it is in consequence either of the disturbance of the coagulum which has first detained it, or of the blood having in some measure lost its natural power of coagulation.

5thly. That when, in consequence of either of these conditions, pus does find its way into the circulation, it may nevertheless determine the coagulation of the blood in its passage, either in a different part of the same vessel, or in distant parts of the system.

6thly. That when the coagulation occurs in a distant part of the body, it is usually observed in capillary vessels.

7thly. That when it occurs in a large vein, it may affect the circulation through the whole of the vessels which supply it; and that if, for example, a coagulum be formed in, or extend to, the common iliac vein, the obstruction produced may give rise to all the symptoms of *phlegmasia dolens*.

8thly. That, under any of the circumstances above mentioned, bleeding and the use of mercurial medicines are of at least doubtful efficacy.

—

16. *Effects of Molluscous Tumours when developed in the External Auditory Meatus.*—Mr. Toynbee exhibited to the Pathological Society of London (May 20, 1851) some specimens illustrative of this.—Although the existence of molluscum contagiosum in the external meatus has not been recognized by any former writers on diseases of the ear, it is far from being a rare disease, especially in elderly persons. It is found in all parts of the tube, but the situation where it is most common is the superior and posterior part, near to the attachment of the membrana tympani. The preparations laid before the Society show the effects of these molluscous tumours—1st, on the meatus; 2dly, on the tympanic cavity.

1st. *The meatus.*—When situated at the posterior part of the meatus, these tumours, if their progress be unchecked, cause absorption of the layer of bone separating the meatus from the mastoid cells, and they frequently extend into the mastoid cells, of which they occupy a considerable space. When a tumour is placed in the floor of the meatus near to the membrana tympani, the bone between the tube and the jugular vein is sometimes absorbed, and the vein is separated from the meatus by only a delicate membrane.

2d. *The tympanic cavity.*—It has already been stated that the molluscous tumours are frequently developed at the superior and posterior part of the meatus, near to the membrana tympani. As they increase in size, they cause absorption of the superior part of the membrana tympani, and of the adjacent bone, thus producing a large opening into the tympanic cavity. Through this opening the tumour extends, and, increasing to the size of a small hazelnut, it not only occupies the greater part of the tympanum, but it sometimes extends upwards, destroys the layer of bone separating the tympanic cavity from that of the cerebrum, and comes into contact with the dura mater, which also partakes of the disease. In one case the tumour had caused disease in the lower wall of the tympanum, and the jugular vein was laid bare. The layer of bone between the carotid artery and tympanum was also carious.

When the tumours have increased to such a size as to cause irritation to the dermoid layer of the meatus, catarrhal inflammation ensues, attended by considerable pain; such cases have no doubt hitherto been comprehended under the general term otorrhœa.—*London Med. Gaz.*, June 1851.

—

17. *Case in which the Liver contained Air.*—M. Piorry recently met with a very singular appearance in the body of a man, æt. 21, who died at La Charité

of very confluent variola, the colon, after death, presenting numerous ulcerations, which only affected the mucous membrane. The circumstance that attracted attention was the fact of the liver, on percussion, transmitting a sound, as if it contained air. Neither it nor any other part of the body had undergone putrefaction. On cutting into the liver, it was found to have lost its granular appearance. On pressure, it crepitated like lung, and swam in water; if squeezed, bubbles escaped from it, and it then sank. In other respects it appeared healthy. The *vena cava inferior* also contained air; but the *vena portæ* was not examined. There were no signs of emphysema, but some gas was observed near the pancreas and kidney. In consequence of the numerous intestinal ulcerations, which, from the hemorrhages that occurred during life, may be supposed to have opened some vessels, gases might possibly have penetrated into the ramuscules of the vena portæ, and thus arrived at the liver. However this may be, had the organ been percussed during life, it must have been mistaken for lung; and when cut into after death, a superficial examination might easily have led to the same error.—*British and Foreign Medico-Chirurgical Review*, July, from *Gaz. des Hôpitaux*, 1851, No. 24.

18. *On a New Epidemic Exanthem.*—Dr. Laycock has published, in the *Medical Times* for March 8, 1851, a clinical lecture on an affection which he considers as a *new epidemic exanthem*. About a year and a half since, he first observed the disease among the patients and domestics of a large private asylum; and even the children of the matron suffered. The robust were affected as well as the feeble. Concurrently with the boils, there was sometimes an ecthymatous affection of the skin. The disease was not fatal in any case. Dr. Laycock believes it to be epidemic over a great part of England.

The disease is mainly characterized by a succession of boils on various parts of the body, of various sizes, from a bean to a walnut. First, there is a small hard pimple, with, perhaps, a vesicle or circlet of vesicles on the top. This itches; the top is scratched off; when it is found that there is a small tumour in or below the derma, which becomes larger, inflamed, very painful, and at last suppurates, with an erysipelatous blush about it, and in bad cases with phlyctænæ. A number of these occur in succession on various parts of the body, but principally on the forearm, leg, and nates. Occasionally there is a vesicle only, which quickly puts on the appearance of ecthyma; and in one case at the York Dispensary (in a child), there was just one large livid-looking phlyctæna, as large as a crown piece, very like gangrene. Sometimes there is a solitary boil, large, angry-looking, and mischievous as a carbuncle. An aged lady, who came under his notice, had one of these on the mons veneris; and sometimes even the minor specimens are not to be distinguished from carbuncles. Very often, after they have sloughed and healed, they leave an indurated condition of the skin and subcutaneous cellular tissue.

The eruption, whatever form it may assume, has a definite period of duration, and continues from two to six weeks. The furuncular form is not always more chronic than the ecthymatous, but is so for the most part; the exceptions being those cases in which the patient is cachectic. It is not, however, dependent at all upon a cachectic condition, for it occurs in robust men and in very healthy children. Nevertheless, the cachectic suffer more from the disease, and perhaps they suffer also in greater numbers. In some instances we may clearly trace the localization of the boils to some local cause; for example, a crop will break out round a blister, or round another boil, if it be poulticed much, or round a burn. In one case, they occurred on the neck, thorax, and upper arm of a young woman who had irritated her throat by the inunction of the iodide of potassium ointment; and in another, chronic psoriasis seemed to have been the exciting cause. Dr. Laycock suspects that any local irritation of the skin is sufficient to induce the disease in an individual within the sphere of the epidemic.

Dr. Laycock believes that this eruptive disease occurs under the following forms: 1. There may be a solitary boil, presenting, for instance, a phlyctenoid character, with inflammation of an erysipelatous character extending down the arm to the wrist, and upwards towards the shoulder. 2. A solitary phlyc-

tæna, or several. 3. Several boils, varying in size and character up to carbuncles, without any other cutaneous disease. 4. Boils, with ecthyma, eczema, or impetigo; but much more frequently with ecthyma. 5. The boils differ, in leaving or not leaving behind them an induration of the skin and subcutaneous tissue.

Dr. Laycock is of opinion that this epidemic is essentially a blood-disease, caused by some specific poison. What that poison may be, and what its origin, are altogether uncertain; it may be from the atmosphere, or from our food, as American flour, for example, or from the flesh of tainted cattle, or may be generated within the body by atmospheric peculiarities; or it may be a contagious *materies*, originating in the first instance with brutes, and then transmitted from one individual to another. If it be the latter, as seems most probable, then he thinks it is *strictly* contagious, like glanders or syphilis, and not infectious also.

During several months past, there has been an epizootic prevalent in Yorkshire, affecting horses and cattle. In the latter, the mouth and throat are so inflamed that the animal cannot eat, or the hoofs come off. The same disease is prevalent in Shropshire. It seems to correspond with the epizootic *Maulweh* and *Klauenseuche* of the Germans, and is accompanied with an aphthous eruption. According to Levitzky, persons attending on cattle attacked with this disease, or something similar, which he terms, "angina catarrhalis," were affected with an inflammatory *rheumatic* fever (not with an angina catarrhalis), accompanied with a pustular eruption, and abscesses and ulceration of the lower extremities.

In treating this furuncular disease, little more is required, in ordinary cases, than to let it run its course, which is completed in three or four weeks. An occasional purgative and warm bath will be useful in allaying inflammatory action, and perhaps diminishing the number of boils. Two grains of calomel with rhubarb, colocynth, or scammony, twice a week, will be useful: in the more severe cases, the mineral acids and vegetable bitters must be added, and a good diet; the liquor of the amorphous sulphate of quinine in full doses, with dilute nitric acid, has been found useful. In all cases, however, purgatives and the warm bath are beneficial. Cataplasms, fomentations, etc., are not of much service. So soon as suppuration is established, a free incision should be made into the boil, and then the water-dressing applied: care should be taken that the pus do not flow on the adjoining skin, and (as in erysipelas) that the sponges, etc., be not used by other patients or persons.

The editor of the *Lond. Journ. Med.* states that boils have been unusually prevalent this year in London and the neighbourhood, and in Philadelphia we have observed a very remarkable number of cases of this affection, as also of carbuncles and of whitlows.

—

19. *On Eclampsia Nutans.*—Dr. Faber relates two cases of this curious affection. The *first* occurred in a girl, æt. 3, who, though pale and weakly, had not suffered from any decided disease until three months before, when she complained of headache and sleepiness, began to squint somewhat, and sometimes to nod her head towards the left side. This nodding action was at first continued only for a few minutes three times a day, during which the head was making constant salutation-movements. After a while the attacks increased in frequency, and were fearfully violent. The child was much disposed to sleep; and became on waking convulsed in the extremities, this passing on to complete epilepsy. She was backward in mental development, and had an idiotic expression of countenance.

The *second* occurred in a boy, æt. 6, who showed good capabilities for instruction up to the commencement of his sixth year, when he fell into the water. He remained in bed several days after in a drowsy state, and was never again so lively and quick. After a while, he was observed to nod his head for two or three minutes, and this several times in the course of the day, the motions being sometimes so rapid that eighty could be counted in a minute. They commenced at first slowly, like real salutations, but gradually increased in quickness, when the child would fall back in a passion. During the time they con-

tinued, his face was distorted, and great fatigue was induced. He was aware when the attacks were coming on, and his consciousness continued during their prevalence. He was pale and feeble, and had acquired a peculiar, stupid look.

The reporter inquires whether this is a partial chorea or a peculiar form of spasm, and whether it is dependent upon morbid conditions of the brain or spinal marrow. The most careful examination of his two cases did not enable him to decide. No pain or tenderness about the head or spine was discoverable, and nothing abnormal in the general condition. Various applications and medicinal substances were resorted to, with but very little success—iron seeming the most useful among them.—*British and Foreign Medico-Chirurgical Review*, July 1851, from *Schmidt's Jahrb.*, vol. lxvii.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

20. *On the Application of Anæsthetic Remedies to Surgical Purposes.*—The *Dublin Medical Press* (March 12th, 1851) contains a very interesting paper on this subject, communicated to the Surgical Society of Ireland by Dr. FLEMING, which we conceive to be of so much practical importance, that we shall give a very full analysis of it.

In considering the selection of cases for anæsthetic agency, Dr. F. remarks, "The state of the system at large must be borne in mind, and also the special character and locality of the injury or disease which it may be the object of the surgeon to remedy. Those two circumstances should form most important elements in his decision, as upon the accuracy of that decision depends the successful or satisfactory application of the agent—nay more, perhaps the life of his patient. Due importance should be always attached to them—careful examination should be made as to the presence of any structural lesion of any vital organ—habits of previous life should be inquired into—peculiarities of constitution should be ascertained—and functional derangements, not fairly attributed to the peculiar nature of the case, should be carefully investigated. Every day's observation proves the importance of those particulars as regards the general condition of the patient; and it will be seen, in the sequel, how requisite it is equally to bear in mind the local features of the injury or disease present. Yet, it is a pleasing reflection that occasional deviations from such stringent rules may be made without injurious consequences, even in reference to the general signs of disease, as would appear from the following remarkable instances:—

"In September, 1848, a young man, aged about 20, reduced to the most extreme state of emaciation and exhaustion, and in the advanced stage of phthisis, accompanied with cavities in the upper part of each lung, entreated Mr. Cusack to amputate his thigh under the most distressing and uncontrollable sufferings. The knee-joint, for a lengthened period the seat of chronic strumous arthritis, now presented its cavity exposed from the sloughing of the whole of its anterior coverings, and one enormous sheet of ulcerating surface was to be seen, with the carious ends of the bones projecting through it. The torture of the poor fellow was frightful to witness. The slightest motion of the limb, the slightest touch of the surface, produced the most agonizing cries. His wish was ultimately acceded to: he was removed from his ward to the operation theatre under the anæsthetic influence, and under it a painless amputation was performed without any injurious results, either immediate or subsequent, the pulmonary symptoms not having been ostensibly, in the slightest degree, affected by it.

"Another case is worth noting, in which benefit was derived from its partial adoption, although a very important organ was implicated.

"In May, 1849, a young man, between twenty and thirty years of age, of athletic frame, and in apparent good health, betrayed maniacal symptoms of a

nature to demand personal restraint. It was indispensable to put on a straitwaistcoat, and any attempt on the part of the attendants to do so, no matter how devised, had failed, and always produced most violent paroxysms of rage, during which every mischief was threatened. It occurred to me that, under anæsthetic influence, the object might be accomplished. I induced him to lie down, and proceeded in the ordinary way to administer the agent. He became tranquil and comparatively composed and manageable, though he continued to speak equally wildly and incoherently. Watching an opportunity, I now desired the very same attendants to proceed to the ordinary mode of personal restraint. He submitted to the details without the slightest opposition or remark, and did not subsequently express any annoyance from it, the symptoms of his disease being apparently uninfluenced in other respects.

"A third case may be added, where, although the age of the individual was far advanced, and deranged cardiac action existed, yet complete anæsthesia was superinduced and kept up for a lengthened period with impunity.

"A man, having all the external characteristics of perfect health for his advanced period of life, verging on eighty years, applied to me with symptoms of calculus in the bladder. I sounded him, and finding a stone, procured his admission into Steevens' Hospital. It was finally decided that the case was one favourable for lithotomy, and the operation was performed by Mr. Colles. The question of anæsthesia became an important one, as well on account of his period of life as of the fact that there was much irregularity of the pulse. By the ordinary physical examination, no sign of any structural lesion of the heart could be detected, either after hurried exercise or when at rest. The man was a very placid creature, and willing to submit to any operation for his cure. During his stay in the hospital, he witnessed the effects of anæsthesia in varied patients who had undergone operations, and he stated to me that he was anxious to submit himself to the same influence. I made an experimental trial two days before that arranged for the operation, and found I could succeed without influencing materially the pulse. I did not press the agent, and allowed its effects to pass off rapidly. He felt no uncomfortable sensations from the experiment. He moved about, ate his meals, and slept, as usual. On the morning of the operation he was calm and placid as heretofore, and felt no apprehension of its effects or of its results. He dressed himself, walked up to the operation theatre, entered into conversation with those around him, and placed himself on the operation table without the slightest murmur. An operation, necessarily tedious from its complicated details, was undergone without a particle of suffering, and this aged man awoke, if I may so express myself, from his anæsthetic sleep, with a countenance as calm as if no operation had been performed, and with a pulse as firm as previous to it.

"I have selected these as extreme cases, illustrative of the opportunities we may avail ourselves of to alleviate human sufferings, even under the untoward circumstances I have specified; but it should never be forgotten that such are exceptional cases, and of a class requiring the most careful circumspection, and that, as a general rule, we should avoid those where the slightest deviation from the normal condition of any important organ presents itself. Assuming, however, that no such objection exists, many opportunities present themselves of witnessing the beneficial effects of this valuable assistant to the surgeon in the diagnosis and treatment, operative or otherwise, of injury and of disease.

"I could enumerate many instances illustrative of this. In dislocations, in amputations, primary and secondary, in the removal of tumours in varied situations, the removal of the breast, of the testicle, in operations on the urethra, in hernia, in necrosis, in lithotomy, in the extirpation of the eye, in numerous plastic operations, and others of a comparatively minor character, cases could be brought forward in which I adopted it, and an equally considerable number and variety could be reported from the communications I have received on the subject. However, it would be inexcusable to occupy the time of the Society with their details; and especially as many of those cases are familiar to members present, and no very remarkable peculiarities having presented themselves in the majority, I should prefer special allusion to those alone which may answer the practical objects in view, as we proceed.

"Independent of the cases above noted, I might mention others in which anæsthesia was had recourse to, but in which, as far as my experience at present goes, its adoption is, to say the least, injudicious, as well from the seat of the disease requiring surgical interference, as from the necessary position of the patient during the operation. In fistulæ in ano, and in hemorrhoids, where operative proceedings are called for, I am by no means satisfied with its results. I doubt if the best position for the patient in such cases is not leaning forward over a bed, table, or chair, and very often he is necessarily not a passive agent during the operation; if such be the fact, the objection to the use of anæsthetics is obvious.*

"In operations about the mouth, such as the removal of the upper or lower jaw, either partially or wholly, the propriety of anæsthesia appears to me to be more than questionable, for reasons similar to those already mentioned, quite independent of the risk of the attendant hemorrhage; and this same remark is applicable to any operation implicating the cavities of the mouth or nose. In some of those cases, particularly that of the removal of the lower jaw, I have imagined that the attendant pain has been mitigated materially by partial inhalation, both previous to and during the stages of the operation, but it requires great caution, and the nose is the organ through which the vapour of the agent must pass, it being absolutely idle to attempt it through the mouth. I might instance cases in ophthalmic and in obstetric surgery where equally important obstacles exist to the safe and successful induction of anæsthesia. These cases, however, have attracted the attention of far more competent authorities, and it is not requisite that I should do more than allude to them. I have used anæsthesia satisfactorily in a case of extirpation of the eye by Dr. Jacob at the Baggot-street Hospital, and in a similar operation, in private, by Mr. Wilde. In many other operations of his, such as painful plastic operations and operations on the face and lachrymal appendages, it has been of immeasurable value; but in those operations involving the interior of the orbit or the globe of the eye, such as strabismus and extraction of cataract, where a certain amount of assistance on the part of the patient is requisite during the several stages of the operation, I fully agree with my friend Mr. Wilde as to its inapplicability."

With regard to the *mode of administering the vapours of anæsthetic substances with the view to securing their salutary effects*, Dr. F. observes that "certain rules must guide the surgeon, which should be observed as rigidly as in the performance of his varied operations, in order that he may be prepared to meet any contingency. He should have a clear and distinct knowledge of the

* I have occasionally found that the seat of disease or injury is, when under anæsthetic influence, as if cognizant of what is contemplated, or, in other words, that its organic sensibility is not destroyed, and it is hence absolutely indispensable in some operations that the surgeon should be prepared for this, to avoid any rash movement on his part or on that of his patient. Thus, I have seen the rectum protruded, in cases of disease engaging it, when the patient was perfectly unconscious, and all tactile sensation blunted. In a similar state of the system, I have seen the upper and lower extremity, the seat of the operation, thrown into automatic movements, whilst the remaining portions of the muscular system were tranquil and motionless; and in sounding for the stone, and in the stages of the operation of lithotomy, I have seen a regular paroxysm of what is termed a fit of the stone when the patient was perfectly anæsthetic, as far as the conclusive signs of such state are concerned. I have witnessed, in a case of congenital phimosis, in a young officer, which he wished to be removed, the penis thrown into a state of turgescence when the operation was perfectly impracticable until it subsided, and this although consciousness and sensation were obliterated. I must here add that such conditions of the organ I never before witnessed; but I have repeatedly witnessed unsatisfactory anæsthetic effects where it was the subject of operation, and especially where the parties were inveterate smokers or drinkers. A curious coincidence once occurred in the case of a dog of the bull-dog tribe, who had an enormous growth of warty excrescences under the prepuce and around the glans, identical with those occasionally met with in the human subject. The dog was brought to our talented veterinary surgeon, Mr. Fergusson, for advice, who, whilst the dog was under anæsthesia, removed them, the penis being so perfectly rigid that he was enabled to do so without any section of the prepuce.

agent to be employed, and be fully satisfied of its purity—he should have a simple apparatus for its administration—he should consider the actual condition of the patient, as to the state of his health and strength at the time of exhibition—and selecting a proper position, free from constriction of any kind, he should have at hand remedies to counteract any injurious effects which may supervene. In all those details he cannot be too particular, if he wish to provide against accident, upon the non-occurrence of which he can never calculate with any certainty, in any given case. I may hence be permitted to enter somewhat at large upon this part of the subject. Chloroform, the agent at present in use for anæsthetic purposes, is familiar by name to all. It has now borne the test of more than three years' experience, and for it we are indebted to the untiring energy of Professor Simpson of Edinburgh, whose name can never be mentioned but with gratitude and respect. The advantages which this agent possesses over that first suggested, it is unnecessary for me here to specify. Suffice it to say, that the surgeon who contemplates the induction of artificial anæsthesia should accustom himself to the appearance of this agent, to its peculiar smell, and to those simple tests of its purity which are always within reach. Its specific gravity in its fluid state, and especially in a state of vapour, he should never lose sight of, all those and other particulars being of great practical value. I never use chloroform without examining it by the simple tests of litmus paper and water, and if at hand, a solution of nitrate of silver. If the former remains unaffected by the vapour, and if some of the specimen dropped into a test-glass containing either of the latter fluids, occupies the bottom of the glass as a clear transparent globule, I am satisfied that it is genuine, or at all events suited for practical purposes. But if, on the contrary, the litmus paper is reddened or bleached, and if the globule appears opalescent, or like a muddy lens, I reject it as adulterated, and unfit and unsafe for use. I mean not to attach to those tests any undue amount of preference. I am aware that there are others, but they are more adapted for the laboratory and for the chemist, and I can add, with confidence, that those I specify will answer all practical purposes. I place much confidence in them, and they are certainly more within the reach of the practical surgeon than that suggested by Professor Gregory of Edinburgh, and, as far as I can learn, they are equally valuable. That an acquaintance with these details is requisite, will be obvious from the following facts, which I select from many others I could enumerate. They are illustrative of the value of attention to the specific gravity of the vapour of chloroform, and to the smell of chloroform, with a view to its effects.

"A boy, aged about 16 years, was the subject of a morbid growth of skin, which hung in loose unwieldy folds on his back. An operation was decided on, for its partial removal. A few days previous, I subjected the boy to the vapour of chloroform with satisfactory results. The operation was necessarily performed with the boy lying on the abdomen; I administered the chloroform without reflecting on its high density; the boy was himself aware of the difference in the effects on this occasion, and there was no relief to his pain. In the after stages of the operation his position admitted of change, and with it the effects of anæsthesia were decisive. Again, a fine boy, aged about 10 years, was supposed to labour under the symptoms of stone in the bladder: he was brought to town for advice; at two separate sittings he was sounded, under the full influence of chloroform, which I knew to be genuine. The specimen was exhausted, and I was obliged to procure some, in a hurry, on a third occasion. The boy, on smelling it, at once perceived a difference, could hardly be induced to inhale it, and its effects were so distressing that he never afterwards would submit himself to the anæsthetic influence. On subsequent examination, I found that the smell was that of naphtha, and that the specimen had been made from naphtha."*

* Whilst these pages were passing through the press, a case occurred which gives additional proof of the importance of attention to the above particulars.

A servant girl had, by accident, a portion of a fine sewing needle impacted in the palm of the right hand, and previous to the attempt at its removal, I administered chloroform. My supply being small, my friend Dr. Hardy brought me some which he had

As regards the dose of the agent to be administered, Dr. F. remarks "that he is a rash practitioner who would presume, even on the most extended experience, to overwhelm his patient with such a powerful and such a treacherous drug, irrespective of the case before him. The dose commenced with should always be a minor dose, certainly not exceeding one drachm, and it should be increased according to its effects. The most desirable anæsthetic sleep I have ever witnessed, I have produced and I have sustained, during a lengthened period, with a quantity of chloroform not exceeding one drachm, whilst eight times that quantity have been wholly inefficient under apparently similar circumstances. I have mentioned that the condition of the patient, as to his state of health and strength, and his unconstrained position at the time of inhalation, form important items in the rules which should guide us in securing salutary effects from the agent I view them as all-important, and I am of opinion that many of the unfavourable occurrences which have taken place elsewhere are mainly attributable to oversight as regards them. The infant, the child, the adult man in rude health, the aged man, the delicate female, and the man prostrated by injury or by disease, obviously require separate consideration; and the value of such distinctions will appear when the effects of anæsthesia are taken into account, where such debility and exhaustion are present, and where they are accompanied with feeble cardiac action. The case which I have already alluded to, and the particulars of which have been so honourably communicated to me to lay before the Society, are so conclusive on this point, that it is not requisite to do more than to refer to them. They will serve as a lasting lesson of caution to the surgeon under similar circumstances, at least in this country."

With respect to the position in which an anæsthetic agent should be administered, Dr. F. prefers the recumbent or semi-recumbent, either on the side or on the back, and he says, "I would never recommend its use in any other, unless there was every provision, beforehand, to place the patient instantaneously in that posture, if requisite. I would strenuously oppose any other where much delicacy or debility was present; and I would particularly insist on every article of dress being perfectly free from any constriction, especially about the neck and chest. In one instance which I witnessed, death was all but produced by the neglect of unloosing the stays of a female, and serious results arose from similar neglect in the neckcloth and shirtneck of men. In the ordinary operation for phimosis being performed by Mr. Wilmot, whilst the patient was in a sitting posture, I was administering chloroform, when I observed the man's face become pallid and his head droop. There was absolutely no pulse to be felt at the wrist, and even the action of the heart had apparently ceased. Had he not been rapidly, but cautiously, thrown into the horizontal position, to assist ordinary stimulants, he must have died. A lady who had her forearm amputated for malignant disease at the wrist mentioned to me that, preparatory to the operation, she was placed sitting in a chair, and subjected, in that position, to anæsthetic influence, and that a train of symptoms, accompanied with the most frightful prostration (but with perfect consciousness), supervened, in consequence of which the operation was deferred, and only proceeded with at her urgent request, after four or five hours delay, whilst she was in bed. Cases, doubtless, may occur where patients are in rude health, and where the peculiar

lately procured at one of our first establishments in this city, and which at the time was considered to be genuine. He had never opened the bottle, which was provided with a glass stopper, and a leather cap over it. I found its smell pungent and disagreeable, and quite different from that of pure chloroform; it was yet perfectly clear and transparent. When inhaled by the patient, it could hardly be tolerated, and it produced incessant spasmodic cough. It answered, however, to keep up the anæsthetic effect produced by the first specimen. It was afterwards found that litmus paper was reddened by it, and that free hydrochloric acid was present, and, moreover, that the same change had taken place in the contents of the bottle at the laboratory from which it was supplied. The impression is that some decomposition had taken place. This fact shows the necessity of testing every specimen of chloroform immediately before administration, as it appears that a perfectly genuine article may undergo important chemical changes. It may be a good precaution to keep the drug for immediate use, in small stopper bottles, with glass caps, and to guard them against exposure to the light.

nature of the case may sanction the selection of the sitting posture; but if so, let the surgeon recollect that he can never calculate on what contingency may arise, and let him provide accordingly, and, above all, let him be circumspect when any symptoms of even an approach to delicacy or to debility manifest themselves. Many illustrations could be brought forward confirmatory of the importance of such caution, but I feel it is not requisite to do so. I may mention, incidentally, that I never hesitate to put children under the anæsthetic influence in the mother's or in the nurse's arms, but that, as the conclusive effects appear, I at once place them recumbent.

"In speaking of the condition of a patient subjected to anæsthesia, I have alluded to that extreme state of exhaustion attendant on returning collapse from injury, or on protracted suffering from local disease, as a matter of vast moment for the consideration of the surgeon. It must never be lost sight of, and it is far better that he should never think of anæsthesia if he does not bear it prominently in view. If he adheres to one of the injunctions laid down, as regards the state of the stomach of his patient, I cannot almost understand how he can escape some fatality. I am fully alive to the importance respecting the impropriety of inducing anæsthesia immediately after a meal, but I am equally satisfied that even such a condition is less hazardous than the opposite extreme, and that in delicate females, and in persons exhausted by long-continued suffering, the very consequence sought to be avoided is rather encouraged. I have met with very unmanageable sickness of the stomach after fasting, purposely protracted with a view to the inhalation of chloroform. It is, therefore, well to avoid it. I may instance a case of congenital cataract operated on by Mr. Wilde. The subject was a delicate girl aged about 12 or 14 years. Sickness supervened during the steps of the operation, although she had had no food from the previous evening, and, moreover, the anæsthetic condition was by no means satisfactory.

"The first case of this kind in which it struck me that salutary anæsthetic effects might be secured, occurred in one of the constabulary force, a patient in Steevens' Hospital. He was the subject of disease of the knee-joint, advanced to a stage to demand amputation, and was in a state of such extreme exhaustion that the operation was not free from danger. It was most desirable to save him the shock and pain of it, and yet his condition appeared to militate against the use of chloroform, for which he was most anxious. It struck me that some dietetic stimulant might answer as a protective, and I gave him, about half an hour before the operation, some brandy beat up with the yolk of egg. The chloroform was now administered in his ward, previous to his removal to the operation theatre; the limb was removed by Mr. Wilmot, and he was replaced in bed, without knowledge or pain throughout the whole proceeding, and in a condition not appreciably different from that which preceded it. At St. Vincent's Hospital, not long since, immediately before the operation, by Dr. Bellingham, of the removal of a very painful disease of the great toe, I adopted the same expedient in a weakly woman, aged beyond 50 years, preparatory to the exhibition of chloroform, and the general remark was, that the anæsthetic effects were satisfactory throughout, and that the strength of the woman was rather improved than otherwise after the operation, although it was somewhat protracted. The case of advanced phthisis, already noted, was treated in the same manner, and others could be brought forward confirmatory of the value of such proceeding. I may, then, venture strongly to recommend to the profession, as an excellent protection in those cases of prostration or of debility in which the use of chloroform may not be otherwise contraindicated, the administration of some cordial stimulant in a small compass, before the operation. I have never witnessed the slightest attempt at sickness produced by it, and it has always acted as an efficient and safe stimulus.

"In addition to the above precautions, I would recommend the surgeon always to provide himself with a sponge and basin of cold water and a bottle of ammonia. They, with a stream of cold air about the patient, are the best remedies with which I am acquainted for controlling the anæsthetic effects of chloroform within safe limits, and by their alternate use I never hesitate to prolong those effects, and to renew them when necessary, until the object of the

surgeon is completed. I may instance a case of femoral hernia, complicated with ascites, in a man aged beyond 40 years, a patient of Dr. Bellingham's, where operation was required, and where the steps of the operation were necessarily tedious: here the anæsthetic influence was thus kept up for nearly an hour, in the intervals of the exhibition of the agent, and no inconvenience was experienced. I would, then, recommend them as indispensable adjuncts before an operation is commenced, as they may be suddenly required, and may not be so easily commanded during its performance. I never omit them."

Dr. F., like most observers, prefers the agent to be administered gradually; that free atmospheric air should be alternated with its vapour; that, throughout the whole period, care should be taken to admit it in proportion to the effects produced; and that progressive rather than sudden anæsthesia should be aimed at. "The surgeon," Dr. F. remarks, "who witnesses the effects of those anæsthetic remedies, no matter how warm an advocate he may be for their use, cannot conceal from himself the practical fact, that the most extraordinary, the most unaccountable uncertainty attends their administration, and that this is, by no means, always referable to any impurity in the agent employed. I have used chloroform very extensively, and in almost every variety of case. I have used it in the infant, in the child, in the adult, and in the aged. I have procured it from the best sources in the city, and from none, I must say, more uniformly certain as to its effects, than from Mr. Hunt. I have, moreover, procured it from Duncan and Flockhart of Edinburgh, through the talented advocate for, and originator of it, and I can unhesitatingly assert that, as regards its effects, I never could calculate with any certainty as to what they would be in any given case. I admit, as has already been alluded to, that they are much influenced by purity of agent, and by varied character of constitution, and of injury, or of disease; but I have fruitlessly attempted to establish any unerring data upon which their actual nature can be anticipated, either in order of occurrence or of intensity.* Without entering too much at large upon them, it will answer all practical purposes to consider them as premonitory, conclusive, and incidental. The two former being usually present, the last not necessarily so; the premonitory being ushered in by symptoms extremely variable, but generally indicative of momentary excitement of some one kind or other, and such often suddenly subsiding when the conclusive or true anæsthetic set in. In not a few instances, however, the premonitory continue persistent, and are accompanied with a state bordering on a regular epileptic attack, consciousness being completely annihilated, and the most extreme vascular turgescence being superadded to frightful muscular movements. Under ordinary circumstances, this stage of excitement is more manageable, and, although some little restraint is requisite, yet, by slight control, it passes off.† If such train of symptoms were not accompanied with any severe struggling or opposition on the part of the patient, I would recommend the persistence in the application of the agent until the conclusive effects were produced; but if otherwise, I would at once suspend its use. I would encourage the patient: I would reason with him, and he can often be reasoned with, and at the same time I would steal on the application, keeping the apparatus near the face. In delicate females and in children, I would be particularly circumspect in observing those precautions. I would deprecate violence of any kind: and if by persuasion, or by unobserved manipulation, I did not succeed, I would prefer suspending the inhalation altogether,

* It is, moreover, a fact worth recollecting, that the same uncertainty attends the repetition of the anæsthetic agent at different periods. I have heard persons calculate with much confidence upon producing most satisfactory anæsthetic effects, because in experimental trials, before an operation, they had succeeded; yet, on the operation table, the very opposite was the result.

† I have witnessed some few cases where absolute violence was attempted under such excited condition. In one, of an officer being operated on for fistula in ano, he jumped up off the sofa on which he had been placed, and put himself into a boxing attitude, to the no small alarm of his surgeon. It is surprising, however, how easily controllable persons are under such circumstances, and there is not the slightest recollection of the occurrence.

to rashly pressing it, when the patient appeared to be inimical to its full or salutary influence. During the cries of children, you will often succeed most satisfactorily, by playing carelessly with the sponge or other apparatus before them, when you will find that they are imperceptibly brought under the anæsthetic influence.

"Premonitory symptoms, such as the above, are occasionally totally absent; not a trace of them is to be observed. Perfect anæsthesia is as if instantaneously produced, whilst again in other cases they are merely transitory, and the conclusive supervene. Those are so characteristic as to require no special description. To the medical practitioner, they are fully indicative of the symptoms of cerebral congestion, and oppression from ordinary causes, familiar to him in practice, and he cannot witness them without somewhat of alarm. They are, in appearance, very formidable, and the surgeon cannot divest himself of a certain degree of anxiety unless he possesses an amount of rash confidence, which is always to be deprecated. When this train of symptoms manifests itself, he should at once suspend altogether the use of the agent—allow free access of air to his patient—keep up a perpetual current of reflex action, if I may so express myself, by constantly sponging the face with cold water—and renew, or otherwise, the agent according to the necessity of the case, by watching the stage of the operation, and especially the state of the circulation, as evinced by the pulse and countenance, the condition of which must guide him as to the use of ammonia, or fresh inhalation of the agent.

"Such are the conclusive or full anæsthetic effects as usually described and witnessed; but the most perfect anæsthetic sleep, and that which it would be most desirable always to establish, may exist in the absence of that apoplectic state which has just been alluded to. The countenance is calm and placid: there is an absence of vascular turgescence, capillary or otherwise; and the respiration is so tranquil that it is scarcely perceptible. Of such I have witnessed numerous instances, and some where, although tactile sensation was completely blunted, yet consciousness was not fully destroyed. Thus, a man had been operated on in one of the provincial hospitals in England for malignant cancer of the lip: a fungus sprung up from the cicatrix of the wound made in the operation, to which, after inefficient trials of other remedies, it was deemed prudent to apply the actual cautery. I put him under the influence of chloroform. The premonitory effects were mild, the conclusive placid. The man was conscious of the whole proceedings antecedent to the application of the iron at a white heat, and winced not in the slightest degree during it, remaining perfectly unmoved, and not suffering the slightest pain. I have seen the os calcis removed in a delicate strumous boy, in this form of anæsthetic sleep, when, during a dissecting operation, he was as motionless as a statue. I have seen Dr. Mayne perform Professor Syme's operation on the foot (an equally searching operation) on a young woman, under similar circumstances; and others I might extract from my note-book, and especially those of the autoplastic class, in which this desirable condition existed. This is the anæsthetic effect which it should be the aim of all to accomplish, as in it, there is no apparent derangement or distortion of function, so unpleasant to witness in that usually produced, and so justly deemed inimical to the general application of those remedies, but unfortunately it is most uncertain in its production. Were I to hazard an opinion, I would say it was more likely to supervene in those cases where there has been much suffering and much exhaustion from protracted disease of the bones or of the joints, as met with in strumous individuals, or after injuries, where much hemorrhage and collapse has occurred; and it is well, in a practical point of view, to bear it in recollection, as such *form of anæsthesia may rapidly and unexpectedly establish itself, the dose of the agent being often remarkably small which may induce it, and the ordinary premonitory signs not always preceding it.** When the class of symptoms above alluded to super-

* The following cases may be noted:—

A child, miserably delicate, and aged about six years, was brought to hospital in the advanced stage of hip-disease, with the additional deformity of flexure of the thigh on

venes, the surgeon cannot be too cautious as to his mode of proceeding. The order of anæsthetic influence appears to be completely subverted, and he must, at once, suspend all operative proceedings until he satisfies himself about the condition of his patient. If he attempt to persist in pressing the agent, I would apprehend fatal results. He must stop its inhalation—he must substitute ammonia—he must admit fresh air, and adopt the restoratives I have already mentioned—he must watch the pulse and the colour of the countenance and lips of the patient, the latter of which I consider a very good guide to the state of the circulation and respiration—and he must only recur to the agent as the case may require it, alternating its vapour with that of ammonia.

"What I have termed the incidental effects of chloroform are not always present, but they are not the less deserving of attention. They may be primary, whereby I mean they may occur during the administration of the agent, or they may be secondary, and occur subsequent to it. They constitute those deviations from that usual course of anæsthetic symptoms with which surgeons are familiar, and must have been witnessed by any conversant with such. In persons in apparently rude health—in smokers—in persons long habituated to the use of opium, or its preparations—in persons of intemperate habits, either large eaters or drinkers, I have often observed that the course of anæsthesia is irregular.* In persons of a nervous or hysterical temperament, both males and females, it is by no means unfrequent to meet with those incidental symptoms. The premonitory, at the commencement, bear some slight similarity to those usually presenting themselves. The conclusive, in many such cases, *cannot be accomplished*, the system appearing to be absolutely unsusceptible of their supervention. Violent convulsions occur, sometimes engaging the whole muscular system. The contents of the bladder and of the rectum are discharged, and, in other instances, you have all the ordinary attendants on a regular fit of hysteria, such as laughing, crying, and sobbing respiration. During this train of symptoms, there is often a certain amount of consciousness, and if the special object of the surgeon be accomplished, be it operative or otherwise, all tactile sensation appears to be destroyed, as afterwards learned from the patient, although

the pelvis. The limb was extended under the influence of chloroform, the effects of which were instantaneous, and unaccompanied by any of the ordinary conclusive signs.

A boy, aged between 10 and 12 years, had his right upper extremity caught between the rollers of a paper machine. An extensive lacerated wound occupied the upper third of the arm, through which the fractured ends of the humerus could be seen, jagged and spiculated, some detached portions of bone also lying in the wound. The forearm presented, in the integuments and fascia, a longitudinal rent, through which torn portions of muscles protruded, the bones being bared, but not broken. The unfortunate boy was screeching with agony, and with dread at the approach of the surgeon. Under the most rapid and placid anæsthetic influence of chloroform, the limb was adjusted, and from day to day it was dressed, he being, at each dressing, placed in a similar state, and so freed from necessarily intense suffering, the quantity of the agent used on each occasion being under one drachm.

* That this untoward course of anæsthetic effects is not owing to any impurity in the drug, or in its mode of exhibition, may, I think, be assumed from the following case which I witnessed in the Royal Infirmary of Edinburgh in January, 1849, when passing through that city. The case was under the care of Professor Miller, whose advocacy for surgical anæsthesia, and whose valuable remarks on the subject, are, I should suppose, familiar to most members of the Society. A man, aged somewhat about 25 or 30, had dislocated his shoulder some weeks previous to his admission into the infirmary. He was carried into the operation theatre on a couch, and, in the horizontal position, was subjected to the influence of chloroform, in no very measured amount, from an ordinary towel, funnel-shaped. The usual conclusive effects were not produced; the man, when the means for the reduction of the dislocation were applied, resembled one labouring under an aggravated epileptic attack. His countenance was bloated and congested, and the automatic movements of the different muscles were very formidable. The dislocation did not appear to me to be reduced. I afterwards learned that this man was of most intemperate habits. I may add, that he quickly recovered from the effects of the agent, and that he stated to me he was wholly unconscious of pain, or the proceedings gone through.

there are strong external manifestations of extreme suffering. It is in this condition of the patient that the secondary incidental symptoms are often most alarming, if the surgeon is not prepared for their presence, and I am strongly disposed to the opinion, that the cumulative properties of the drug, as they are termed, manifest themselves more decidedly here than in any other case.

"There is nausea, vomiting, pallor of the countenance, and extreme debility, as evinced by a pulse hardly perceptible, by cold extremities, and a proportionate amount of cerebral oppression. I have not seen any fatal results from such symptoms, but I have seen them persistent for two, three, four hours, requiring the most studied exhibition of stimulants to remove them; and, what is still more remarkable, they will occasionally recur at irregular intervals, after their apparent subsidence. It is, however, but right that we should bear in mind, that an identical train of symptoms may supervene, where artificial anæsthesia has not been had recourse to, in subjects of the same class, after an unusual excitement of the nervous system, no matter from what cause originating. In a practical point of view, it is most important that we should recollect the possible occurrence of such symptoms, as it will be a guide to us not to press the agent with a view to its conclusive effects, under the circumstances. I could instance cases of this description where undoubtedly the advocate for anæsthetic agents should hesitate to subject his patient to their influence, could he anticipate such results. The symptoms are so distressing, even as regards the mental sensations of the patient, that, should any circumstances require subsequent surgical interference, he never can be induced to submit himself to a repetition of them. I have fancied that I have prevented this effect of chloroform by the exhibition of an anti-hysteric draught before its inhalation, in an apparently hysterical female, but my experience is too limited to venture to speak with any confidence respecting it. The expedient may be worth consideration.

"There are circumstances connected with the effects of chloroform, or other anæsthetic agents, as regards the wound, the seat of operation, which are very interesting—namely, the condition of the blood—the condition of the muscles, especially in amputations—the occurrence of after-pains or of hemorrhage, and the possible interference with healthy reparative processes. Each and all of those subjects deserve much attention, but I must only glance at them. I am disposed to say, as regards the blood, that I have more frequently observed its natural appearance in the respective vessels than otherwise—that I have seen excellent formed stumps after anæsthetic amputations—that primary hemorrhage is decidedly more the exception than the rule in similar cases*—and that reparative processes have not particularly attracted my attention as interfered with or deranged since the introduction of anæsthesia. These are subjects, however, which must be considered to be, as yet, unsettled. Indeed, it appears to me that, with respect to the whole subject of artificial anæsthesia, we are yet in the infancy of our knowledge, and that the stamp of the conclusive effects of chloroform in one set of cases is so diametrically opposite to that met with in others, it, in my opinion, proves that we have yet to learn the true secret of its salutary administration. I am, however, an advocate for its use in operative surgery, but I am so within restricted limits. In the details given of its effects I have not concealed the dangers and the difficulties to be encountered by the surgeon: on the contrary, I have enumerated many, and I venture to hope that I have suggested the means whereby some may be removed or lessened. I yet contemplate the adoption of anæsthesia in every instance with anxiety, and I hence deprecate it unless the serious nature of the case demands it.† I am

* The subject of hemorrhage, after operations, and that of the reparation of such wounds in anæsthetic cases, I have, in conjunction with Mr. Wilmot, particularly investigated. Mr. Wilmot's opportunities, when resident surgeon in Steevens' Hospital, were considerable, and he hesitates not to confirm the opinion of the comparatively rare occurrence of the one, and the non-interruption of the ordinary healthy processes in the other, the symptomatic fever being unquestionably less violent, and that reaction on the nervous shock attendant on operation being almost nullified.

† The operation which the advocates for anæsthesia recommend the skeptic to witness, is that of lithotomy. I lately placed a child, aged about two years, the subject of

strongly opposed to it in trifling, passing operations. I am favourable to it in all severe operative proceedings, with the exceptions I have noted, and with the precautions I have specified, and I have witnessed such transcendent, such indescribable benefits from it, both in allaying the shock and in abrogating or mitigating the pain attendant on injuries and on operations, that I cannot too strongly impress on the minds of all, the imperative duty of studying its effects, whereby its proper and safe adoption may be secured, and the moral and medical arguments against its use be substantially lessened.*

"One of the most interesting and most happy effects of chloroform I have ever witnessed occurred in the following distressing case, in April, 1849:—

"A young lady, of highly cultivated mind, aged about 25 years, and unmarried, was obliged to submit to amputation of her thigh, for malignant disease engaging the bones of the leg. She had heard of chloroform, and was anxious to learn particulars respecting it, but had, by no means, made up her mind to submit to its influence. I had recourse to the device (which is occasionally admissible, particularly in children) of sprinkling some Eau de Cologne on the outer sponge of the apparatus—the inner being already saturated with chloroform; she was sitting in bed, and in conversation with Sir Philip Crampton, when, taking the apparatus in her hand to examine it, she commenced to inhale from it. After some few minutes, I observed that she was somewhat incoherent and unconscious. I took the apparatus from her, renewed the chloroform, and in a second or so, she lay tranquilly back in our arms. We carried her to the adjoining room, where the necessary appliances for amputation had been previously prepared. The details of the operation were gone through by Mr. Colles, whose patient she was; she was afterwards replaced in bed, and all this occurred without any suffering on her part, and in complete ignorance of all proceedings. It was not without some difficulty that Sir Philip Crampton could persuade her that the operation had been performed. Here, then, was true anæsthetic sleep —no stertor—all was perfectly placid."

—

21. *Acute Traumatic Tetanus treated with Chloroform.*—R. G. H. Butcher, Esq., relates (*Dublin Med. Press*, July 30th, 1851) a case of acute traumatic tetanus, in a boy eight years of age, treated by the inhalation of chloroform. The article rendered the paroxysms shorter, and mitigated their violence, but, as in the other cases reported, did not arrest the disease; and the patient died twenty-four hours after first complaining of stiffness of the neck and difficulty of swallowing, and twenty hours after the accession of the first paroxysm.

such, under its influence. The child was a patient in the Meath Hospital, and was operated on by Mr. Smyly, and all who witnessed the operation must have been gratified. Cases of other children I might also enumerate. I will merely remark that, in Ireland, patients are not always as still and as motionless (though in profound sleep) as elsewhere depicted, and Irish surgeons will bear this in recollection. The same automatic muscular movements occur, as too often witnessed in amputation.

* I am gratified to have the permission of Sir P. Crampton to publish the following very apposite letter on this subject. Coming from an authority so justly estimated and so highly respected, it cannot fail to produce proportionate good:—

"Merrion-square, January 12, 1851.

"Dear Fleming.—With reference to your inquiry, 'whether I have found artificial anæsthesia beneficial or otherwise in surgical cases,' I have no hesitation in stating that I have found it eminently beneficial, not merely in cases of operation, but of severe injury, and of neuralgic affections, unconnected with injury. I have seen chloroform and ether employed in numerous cases both in London and Dublin, and having myself employed them extensively both in public and in private practice. Up to this period, I have never seen artificial anæsthesia productive of any serious inconvenience; whilst its power of preventing or greatly diminishing pain has been decisive. I am far, however, from asserting that fatal consequences have not occasionally resulted from its use. I trust, however, that a more extended experience will lead to the discovery of means of employing this powerful agent, which, without impairing its effects, will render it more safe.

"Believe me very sincerely yours,

"Philip Crampton."

22. *On the Use of Collodion in Ingrowing Nail.*—M. Meynier treats this affection by pressing down the fleshy portion, and pouring in between this and the edge of the nail a small quantity of collodion, which soon solidifies, induces rapid cicatrization of the ulceration, and, when the disease does not arise from an abnormal shape of the nail, procures a cure. M. H. Larrey has recently tried the plan in five cases, and succeeded in four of these.—*Bull. de Thérap.*, tom. xl. p. 185.

—

23. *Some Observations on the Pathology of those Affections of the Ear which produce Disease in the Brain.* By Joseph Toynbee, F. R. S. ("Proceedings" of Royal Med. Chirurg. Society, June 24, 1851.)—In this communication the author has a twofold object: the first is to point out the nature of the several affections of the ear which produce disease in the brain; the second to show that each of the cavities of the ear has its particular division of the encephalon, to which it communicates disease. Thus, that—

1. Affections of the external meatus and mastoid cells produce disease in the lateral sinus and cerebellum.
2. Affections of the tympanic cavity produce disease in the cerebrum.
3. Affections of the vestibule and cochlea produce disease in the medulla oblongata.

1. In speaking of the external meatus, its intimate relations with the lateral sinus and cerebellum are pointed out; the affection most frequently producing disease in these parts is shown to be catarrhal inflammation of its dermoid layer, one of the numerous diseases which have hitherto been classed together under the term otorrhœa. This affection of the external meatus is fully described; and it is shown that it is found to endure during many years, without the presence of pain, or any other symptom calculated to apprise the surgeon of the presence of a formidable disease, while the bone may be becoming slowly carious, and portions of the dura mater and cerebellum disorganized.

In the second division of the paper, the tympanic cavity is described to be the part of the ear from which disease is most frequently propagated to the brain. This circumstance is accounted for, first, by the great liability of the mucous membrane of the tympanum to undergo pathological changes; and, secondly, by the existence of very intimate relations between this membrane and the dura mater. The affection of the tympanum which most frequently produces disease in the cerebrum is chronic catarrhal inflammation of the mucous membrane, an affection thus far only known as an otorrhœa. The four changes in the dura mater and cerebrum produced by the affections of the tympanum are—

1. Inflammation of the dura mater, and its separation from the surface of the petrous bone by serum.
2. Ulceration of the dura mater, and its complete detachment from the petrous bone.
3. An abscess in the substance of the cerebrum.
4. Undefined suppuration of the substance of the cerebrum.

From a careful examination of cases, it appears that chronic catarrhal inflammation of the mucous membrane of the tympanum may exist as many as twenty or more years, without the production of any disease beyond it, or at least without the existence of symptoms by means of which the presence of such disease can be diagnosed; nevertheless, in the great majority of cases, vital structures become sensibly affected in a much shorter period.

The third section of the paper is devoted to the consideration of the labyrinth, and it is shown that purulent matter in the vestibule or cochlea sometimes causes disease of the auditory nerve, which is transmitted to the medulla oblongata, producing suppurative inflammation of the meninges, and death, without the presence of any caries of the bone.

In the course of this paper, the author shows the necessity of abolishing the use of the term otorrhœa, and of using in its place the names of the several diseases, eight in number, of which a discharge from the ear is one of the symptoms. In conclusion, the facts which he is desirous of impressing upon the minds of medical men are, that the bone, dura mater, and substance of the

brain may be slowly undergoing disorganization, without the presence of any other symptoms calculated to reveal to the medical man the existence of formidable disease, than the presence of a discharge from the external auditory meatus; and that, consequently, no person suffering from catarrhal inflammation of the dermoid layer of the meatus, the membrana tympani, or of the mucous membrane of the tympanum, can be assured that disease is not being prolonged to the temporal bone, the brain, and its membranes; and that any ordinary exciting cause, as an attack of fever or influenza, a blow on the head, &c., may not induce the appearance of acute symptoms, which, as a general rule, are speedily fatal. Appended to the paper are tables, giving the particulars of sixty-five cases of disease extending from the ear to the brain, in which tables the duration of the chronic and acute symptoms, and the post-mortem appearances, are concisely detailed.—*Lancet*, July 5, 1851.

—

24. *Treatment of Aneurism by Compression.*—The journals of the last three months contain the reports of several cases in which compression was resorted to for the cure of aneurism; and, as the profession seem now disposed to give this mode of treatment a fair trial, we shall doubtless in a short time have ample materials from which to form an estimate of its value, and the cases to which it is particularly appropriate.

We subjoin a summary of the observations which have been recently made.

—

25. *Case of Popliteal Aneurism treated by Compression; with Remarks, and a List of the Cases treated in Dublin.* By O'B. Bellingham, M. D. (Read to the Royal Medical and Chirurgical Society, June 10, 1851.)—The subject of this case was a labourer, aged forty-two, who was admitted into St Vincent's Hospital, under Mr. Bellingham's care, in November, 1850. The aneurism, which was of large size, was seated on the right side; had a strong, heaving impulse, and a short, harsh bruit was heard on auscultation over it. The treatment was commenced by placing the patient upon a very restricted diet, particularly as regards fluids (six ounces only being allowed in the day, with eight ounces of solid food), confining him strictly to the horizontal posture, with a dose of purgative medicine each night. Under this treatment, continued for some days, the pulse, from being hard and incompressible, became soft, small, and slow. Compression was commenced December 4th, at eleven A.M., by means of two instruments, one upon the artery where it crosses the ramus of the pubis, the other at the lower third of the thigh. At half-past eight P.M., the outlines of the aneurismal sac were more distinct; the patient's skin was cool, and he did not complain of pain. He remained awake during the night, and kept up the compression himself, the points upon which the pad of the instrument should rest having been marked with ink. Next morning, between nine and ten, on unscrewing the instrument, the pulsation of the aneurism was found to have ceased; the tumour was hard, solid, and circumscribed, and an enlarged collateral vessel was felt over the centre of the popliteal region. Moderate pressure was continued for some days; the patient was kept in bed, and the diet was gradually improved. The tumour diminished in size, and became harder, and when the patient returned home, the limb was as strong as the other, and his general health perfectly good. Some remarks upon the treatment of aneurism by compression followed, in which the author contrasted the results of compression and the ligature, and pointed to the advantages likely to ensue from combining constitutional with local treatment. In a table appended to the paper, the author has given a list of all the cases of external aneurism treated by compression in Dublin during the last seven years, in which the seat of the disease is mentioned, the hospital or other locality where the treatment was conducted, the surgeon's name who had the management of the case, and the results are stated. Of these, it appears that twenty-six were cases of popliteal aneurism, twenty-one of which were cured; six were cases of femoral aneurism, of which five were cured, the sixth having been a form of traumatic aneurism in which amputation of the limb was the only resource. Three were cases of brachial aneurism, of which two were cured; in the other, a high bifurcation of the brachial artery existed, and two

vessels required to be tied. One was a case of radial aneurism, which was cured by compression. Of the remaining five cases of popliteal aneurism, amputation of the limb was performed in one, the patient recovering; in a second, the ligature was used with success; in a third, the patient was obliged to return to his employment before the cure of the disease; the aneurism diminished in size, and the patient continued to work for above three years afterwards, when symptoms of aortal aneurism supervened, under which he sank. In a fourth, the patient died of pulmonary disease, and the fifth patient, who was of a broken-down constitution, died of erysipelas.—*Lancet*, June 21, 1851.

—

26. *Popliteal Aneurism; Pressure; Deligation of the Femoral Artery; Recovery.*—The following case occurred under the care of Mr. LAWRENCE, and is reported in the *Lancet* (July 19th, 1851). William J——, aged thirty-one years, waterman, light complexion, short stature, and habitual good health, was admitted into Bentley ward, January 27, 1851, under the care of Mr. Lawrence. The patient states that his habits have generally been temperate, that he has not overworked himself, and that the only ailment he had had to complain of was an occasional pain in the chest. Seven months before admission, he noticed in the right popliteal space a tumour of the size of a marble, which pulsated visibly; the circumstance caused him, however, no alarm, and he was content to rub the tumour with turpentine, without seeking for medical aid. The tumour, however, gradually increased in size, without giving intense pain, and the patient was enabled to attend to his occupation up to two days before admission.

When examined, the tumour was found to be of the size of an orange, situated in the centre of the popliteal space, and presenting very strong pulsations. The hand applied over the swelling received the sensation of a distinct thrill, and a loud bruit was heard on the application of the stethoscope. The patient did not complain of a great amount of pain, neither in the tumour nor in the leg, and the rest of the arterial system seemed in a sound condition.

Mr. Lawrence resolved to try compression of the femoral artery in order to arrest the progress of the disease, and on the 31st of January, four days after admission, a compressing apparatus was applied. It was the usual clamp-shaped instrument, provided with two pads connected with the steel rings (which encircled the thigh without compressing it) by screws of spring materials, the upper part of the screws working as ball and socket. One of the pads was made to press upon the artery in the groin, the other in Scarpa's space, and they were intended to act alternately.

By the use of this instrument, the pulsations of the tumour were completely arrested; the patient, however, stated that the pressure gave him intense pain, and that he should probably not be able to bear the compression long. Nor did his feelings deceive him, for he could endure the apparatus but two hours, at the end of which time it was removed. On the 4th of February, four days after the first application of pressure, Mr. Lawrence proceeded to place a ligature on the femoral artery, the patient having been rendered insensible by chloroform. The artery was tied in Scarpa's space in the usual manner. The pulsations of the tumour ceased immediately, and have never returned.

No untoward symptoms whatsoever marked the progress of the case, and so thoroughly did the collateral circulation become established in a short time, that the limb did not sensibly lose any of its natural temperature, though no cotton-wool nor flannel wrappings were used. The patient did not complain of pain in the leg, and he seemed to experience no uneasiness but what might be expected from a common wound in the thigh.

Ten days after the deligation of the vessel, there was a little numbness in the foot; the latter was, however, not cold, and the wound in the thigh looked well. The tumour in the ham had now become quite hard; there was no thrill or pulsation to be noticed in it, though the size had not materially decreased. The swelling gradually diminished, however, the patient progressed very satisfactorily, and on the 28th of March, about seven weeks after the deligation of the

femoral artery, he was discharged in good condition, the tumour having decreased to the size of a pigeon's egg, and being of very firm consistence.

The only complaint the man had made during the latter days of his stay in the hospital was of tightness and pain in the chest, unaccompanied, however, by shortness of breath. The stethoscope applied to the region of the heart did not afford any bruit or abnormal sound about that viscus.

27. *Aneurismal Dilatation of the Popliteal Artery, treated by Pressure.*—By James Paget, M. D.—The subject of this case was a gentleman, 27 years of age, tall and thin, who had enjoyed good health until October 1845, when he was injured by some boards falling across his legs, after which he suffered severe pain in his knees and legs, and muscles of calf of left leg whenever he walked. Just before Christmas, 1849, he found a pulsating tumour in left ham, which increased until seen by Dr. Paget, 9th of Jan. 1850. At this time, there was in the left ham a tumour of oval form, having its long axis parallel with that of the limb, and measuring two and a half inches by two. It pulsated very forcibly, and equally on all parts of its circumference, and, with pulsation, felt as if it thrilled. A loud bellows sound was audible with the ear placed over the tumour, or over the artery above it. The pulse in the left dorsal artery of the foot was rather feebler than that in the right; but Dr. P. could detect no difference in time between them. The skin over the swelling was tense; but its tissue, like that of all the adjacent parts, appeared completely healthy. There was, indeed, no other appearance of disease, either local or general.

The treatment was commenced on the 31st of January, when first pressure was made to the femoral artery, with one of Dr. Carte's tourniquets. Two instruments were applied, and alternately tightened and relaxed. These caused great pain; and after the fourth week, were changed for the Italian tourniquet. From this time till the 16th of February, the size of the aneurism decreased; but, after ten days, no further progress was made. On the 21st of March, the diminution recommenced; and by the 18th of April it was reduced to the size of a hazelnut, but still pulsated freely. After eleven weeks' confinement, the patient's patience became exhausted, and he wished to move about; but modified pressure was kept up for six weeks longer, when pulsation one morning suddenly ceased, and the aneurism was cured.

In commenting upon this case, Mr. Paget remarks, that the disease was probably an example of aneurismal dilatation, or, as Mr. Luke has named it, tubular aneurism; an aneurism of the cylindriform or fusiform variety described by Cruveilhier—that is, a dilatation affecting, almost uniformly, the whole circumference of the artery in a certain portion of its length. Such dilatations are very rare in the popliteal artery; yet that such a one existed here is made very probable by many things observed in the case, and especially by the great diminution of size of the aneurism while under treatment.

The cure of popliteal and similar aneurisms, whether treated by pressure or ligature, is (Mr. Paget remarks) usually accomplished much more by the filling of the sac with blood-clots, than by the contraction of the sac. Hence, usually, after the pulsation had ceased, the swelling, with comparatively little diminution of size, remains firm and nearly solid, till slowly its size is diminished by the absorption and shrinking of its contents. When, however, as in the case here related, a popliteal aneurism consists in a dilatation of the whole circumference of the artery, we may believe that there is the same indisposition to the formation of clot as in the similar dilatations of the arch of the aorta, and of other great arteries in which no part of the dilatation is far remote from the main stream of blood. In all these cases, it is a matter of common and just observation, that fibrinous deposits are scanty and rare; and, therefore, in the similar dilatations of the smaller arteries, we might expect that the effect of any continued obstruction of the trunk would be the gradual contraction of the dilated portion, rather than its filling up with clot.

Other considerations, Mr. Paget thinks, strengthen this opinion of the nature of the case here related; especially, first, that as the enlargement of the artery after the injury was very slow, there was probably no rupture or serious damage of its coats, but that such a change as might lead to their slow and exten-

sive impairment of structure; and, secondly, that the sensation derived from the touch of the dilatation was always that of a sac tensely filled with fluid, and containing no clots, such as are almost constantly found in saccular aneurisms, *i. e.*, partial or lateral dilatations of the arterial walls.

Commenting on the results of the treatment of this case, by pressure on the trunk of the artery above the aneurism, Mr. Paget thinks that, considering that the patient was instructed in surgery, and well understood the plan on which the treatment was to be conducted, that he had himself chosen this plan of treatment, and submitted to it without interruption, and that it was attended with no local injury or other inconvenience, few cases could have been better suited to the plan; yet so long a period elapsed prior to the cure, that he would not advise it in preference to ligature. He does not, however, discountenance compression, being disposed to attribute its tediousness, in the present case, to the peculiarity of the tumour above alluded to.—*Prov. Med. and Surg. Journ.*, July 23, 1851.

—

28. *Popliteal Aneurism—Treatment by Pressure—Deligation of the Artery—Gangrene—Death.*—Hugh M——, aged 43, a man of spare make and nervous temperament, was admitted into Guy's Hospital under Mr. Hilton, Dec. 21, 1851. As a porter, he was in the habit of straining his legs considerably. For some time past the patient has not drunk to excess, but formerly he was very intemperate, and on being closely questioned as to any blow or injury he may have sustained, nothing of the kind is discovered. One year ago the leg and ankle swelled at times, and nine months since the patient perceived a swelling like a walnut in the ham of the left leg. No attention was, however, paid to this symptom, until a fortnight before admission, when such sudden pain seized the patient, that he could not place his leg on the ground; and he now, for the first time, noticed a pulsation in the popliteal tumour, the latter extending from the ham to the calf of the leg. The pain has since become much worse, and includes the whole thigh and leg.

On examination, a deep-seated, soft, fluctuating, and pulsating tumour was discovered, extending from the popliteal region into the calf of the leg; it diminished in size by pressure on the femoral artery, and the reverse happened when the artery was compressed below the tumour. The usual symptoms of popliteal aneurism, including a distinct bruit, were present.

Mr. Hilton prescribed rest, an elevated position to the limb, the pain to be combated with opium, and the thigh and leg to be carefully bandaged from the toes upwards. About a fortnight after admission, Mr. Hilton had an apparatus applied for the compression of the artery. It was composed of two separate instruments; the one, fixed to the pelvis, was intended to press on the artery in its course of the head of the femur; the other, applied to the thigh about half-way down, was to compress the vessel in Scarpa's space. The pulsation was not arrested by the use of these instruments, but only moderated.

The patient bore the pressure pretty well, complained only of a little cramp in the leg, and stated that the acute suffering he experienced in the limb before the apparatus was put on, was now quite removed. On the third day after the commencement of pressure, scarcely any bruit or pulsation was left in the sac, the latter was less tender and swollen, and the patient could almost straighten his leg, though he had in it a sensation of numbness and tingling.

On the fifth day he began to feel uneasy and complained of the pressure; the pain in the leg had returned, the tumour was larger and softer, and the pulsation much more forcible. On the eighth day the pain in the leg and foot was much increased, and at six in the evening the suffering was so intense that the patient could not bear the pressure or even allow the limb to be touched; the apparatus was, therefore, removed, and a drachm of laudanum administered.

Mr. Hilton now directed digitalis to be given internally, and ice to be applied to the outer side of the tumour. The ice gave much pain and was discontinued. The tumour was, however, becoming larger, and the pulsation scarcely perceptible on the inner, but more distinct on the outer side. On the tenth day after the first application of pressure, Mr. Bransby Cooper, Mr. Cock, and Mr. Hil-

ton, held a consultation on the case, and it was agreed that the artery should be tied in the upper part of the thigh.

The operation was, however, delayed for a couple of days, as active inflammation was going on in the artery and limb. The thumb lightly pressed on the femoral artery caused intense pain, both in the course of the vessel, and the whole limb; it might thus be conjectured what distressing symptoms the ligature would occasion. The patient was placed under an antiphlogistic treatment, with purgatives, &c., and as pressure could no longer be borne, Mr. Hilton had no alternative but to tie the artery (under unfavourable circumstances) or remove the leg. The first of these measures was preferred, and Mr. Hilton put a ligature on the femoral artery, about the middle of the thigh. The coats of the vessel were found much thickened and infiltrated; the patient was at once put into a warm bed, the foot and leg comfortably wrapped up in flannel.

Half an hour passed in comparative ease, when suddenly pain of the most intense and agonizing kind in the whole of the left thigh and leg seized the patient. Large doses of opium were administered, and chloroform inhaled two different times without alleviation. Opium given continuously at last procured sleep, and the patient rested the whole night and part of the following day. The man now complained no longer of pain, but of numbness; the tongue became brown and dry, and the pulse beat 110, small and weak.

On the third day after the deligation of the artery, the pain was absent, the patient slept well, the tumour became harder, diminished in size, and the pulsations did not return. Matters went on very favourably until the tenth day, when shivering occurred, and pain arose in the foot, which was now beginning to fail in keeping up its proper temperature. Wine was now ordered, and the pain having two days afterwards become very violent in the leg and around the knee, Mr. Hilton made a small opening in the sac at its inner and lower part, and allowed three or four ounces of dark, grumous, exceedingly fetid and purulent blood to escape.

Some effusion around the knee-joint was now noticed; a small opening was therefore made on its internal and inferior aspect; but no freeing of matter ensued. Pain and stiffness in the left *elbow*-joint were now complained of: a little more blood was allowed to issue from the aneurismal sac, and a plug of lint placed in the aperture. The patient now took as much as twelve ounces of wine a day, and though the pain in the elbow-joint diminished, it now declared itself on the shoulder, and intense heat attacked the affected leg and foot. Pulse 130, irregular.

On the 1st of February, being the fifteenth day after the application of the ligature, the pain had ceased, but the patient was extremely depressed; the toes on the left side, with a great portion of the foot, became insensible, and of a mottled purple colour; the wound of the thigh remained stationary and the ligature firm.

On the eighteenth day the general symptoms were worse, the gangrene spread over the whole foot and half way up the leg; several vesicles formed, and a quantity of bloody serum escaped from some of these. A line of separation appeared to form a little above the middle of the leg; but the patient, in spite of the stimulants which were plentifully given, became so exhausted that he died on the twenty-second day after the deligation of the artery, one month after the application of pressure, and six weeks after admission.

On a post-mortem examination, pus was found in the elbow, shoulder, and knee-joints. The viscera were tolerably healthy, and no ossific deposit was observed in the femoral or any other artery.

After the perusal of the foregoing case, it will become evident that pressure is a very unfavourable forerunner to the ligature, and that there are patients with whom all methods of treatment, from nervous susceptibility and want of tone, fail of yielding good results.—*Lancet*, June 14, 1851.

—

29. *Popliteal Aneurism Cured by Pressure on the Femoral Artery.*—A case of this is recorded by Dr. W. Ward, of Huntingdon, in the *Prov. Med. and Surg. Journ.* (July 9th, 1851). The subject of it, aged 36, an ostler, who had always enjoyed good health, was admitted into the Huntingdonshire Infirmary, March

13th, 1847, with a somewhat diffused swelling on the popliteal space, which had a distinct pulsation through its whole extent, especially on the outside. Upon compressing the femoral artery, the pulsation ceases, and the tumour diminishes in size; the stethoscope gives a distinct *bruit de soufflet;* the tumour appears about the size of a small egg; there is great pain felt in the tumour, which prevents his sleeping at night; the general health is good; the heart's sounds are normal; the posterior tibial can be distinctly felt, although pulsating feebly; the anterior tibial more feeble, and not so distinct.

On the 19th March, Signorini's tourniquet was applied over the superficial femoral, at the upper third of the thigh, not to completely stop the circulation, but only to impede it, the intention being not to apply pressure too forcibly at first. It was borne very well for a few hours, when the tourniquet was slightly slackened by the patient. Before the application of the tourniquet the temperature of the affected limb below the knee was lower than the sound one; three or four hours afterwards the temperature increased, and became higher than the other, and a slight swelling of the foot and leg appeared.

20*th*. Had no sleep; at intervals has tightened and slackened the tourniquet; the posterior tibial can be felt beating distinctly; there is slight œdema of the limb. The circumference of the sound limb is thirteen inches and a half, that of the affected seventeen inches, measured round the knee. Ordered an aperient. Pulse 80; tongue clean; slight thirst.

21*st*. Slept tolerably well; there is considerable swelling of the leg; bowels open from an aperient.

22*d*. Slept but little; obliged to slacken the tourniquet, or could not sleep; pulse 84; slight thirst; the temperature of the leg higher than the sound one; felt much ease from the application of Goulard lotion to the foot and leg. Size of the limb seventeen inches. On removing the pressure, pulsation of the tumour more feeble than before it was applied. The posterior tibial artery cannot be felt, probably owing, in part, to the swelling of the foot.

This treatment was continued, with variation of the pressure according to circumstances.

April 22*d*. For the last three weeks he has had no pain under the ham, and the aneurismal tumour has considerably diminished, and so altered in its character as to leave little doubt that the aneurism is becoming obliterated. Pulsation in the posterior and anterior tibial cannot be felt. During the whole of this month slight pulsation could occasionally be felt, and pressure was continued, with occasional intermission.

In the middle of June, some slight pulsation with bruit still continuing, the pressure, which had been left off, was reapplied. This was continued for three weeks, when no further pulsation could be felt.

Aug. 28*th*. There is now little or no swelling to be perceived in the ham; no pain upon walking; no pulsation. There is a slight bruit to be heard when the leg is flexed, and the stethoscope pressed deeply into the popliteal space; but this is probably produced by the compact coagulum around the artery. Discharged.

June, 1851. Up to the present time continues perfectly well.

---

30. *Account of the Dissection of a Case in which two Popliteal Aneurisms had been treated by Compression of the Femoral Arteries.* By Prescott Hewett, Assistant Surgeon St. George's Hospital. ("Proceedings" of Royal Medical Chirurgical Society, June 10, 1851.)—A man, aged thirty-eight, was admitted into St. George's Hospital in the middle of 1848, under Mr. Cutler, with an aneurismal tumour in each ham. That on the right side, completely filling this region, was compressible, but could not be emptied; that on the left, not larger than a small egg, was hard, and to a great degree apparently solid, and with much less pulsation. The tumour on the right side had only existed three months, and nothing had been done for it. From the account of the patient it appeared that the disease on the left side, which had begun about eighteen months back, had been treated by compression of the femoral artery, at the Wexford Infirmary, where the pressure had been kept up, more or less, for seventeen weeks, during which time the limb had regained its natural size,

and the tumour was reduced to its present state, from which it has never since varied, and has caused him but little inconvenience. His general health, which had begun to give way about two years and a half back, had prevented him from following his business of musical instrument-maker. When admitted into the hospital, he was pallid and apparently suffering from great debility. At a consultation of the surgeons, it was determined, under existing circumstances, that compression should first be applied to the right femoral artery, and the instrument, a ring tourniquet, was so adapted as only to lessen the circulation in the limb, and to be worn for a few hours daily. In some little time the limb was reduced in size, and the tumour became smaller and firmer, but pulsation still remained. Some six weeks after his admission, and whilst under surgical treatment, cough and expectoration, with difficulty of breathing, made their appearance. Auscultation detected nothing abnormal about the heart, but the lungs were found to be engorged at the back part. The chest symptoms went on increasing in severity, and the patient one day suddenly brought up a large quantity of arterial blood, and died shortly afterwards. The tumour in the right ham had gone on decreasing in size, and had become firmer and more solid, but some pulsation was still felt. No change had occurred in the left ham.

At the examination of the body, which took place thirty-one hours after death, the left aneurismal tumour, deeply imbedded in the popliteal space, was found lying between the joint and the artery, of the size of an egg; it was pyriform in shape, and apparently quite solid, but on cutting into it the lower half only was filled with long-standing coagula; the upper part, still presenting a cavity lined throughout by a perfectly smooth membrane continuous with the coat of the artery, merely contained some small recent clots. Of the two openings into the sac, the upper one was large, and nearly of the size of the artery; the lower one, on the contrary, was much contracted, and scarcely admitted a common-sized probe. The portion of the artery lying upon the sac was also very much contracted, but its coats were healthy, as well as those of the posterior and anterior tibial vessels, which were of their normal size. In the upper part of the popliteal, and in several parts of the femoral, there were large patches of atheroma, with three distinct aneurismal dilatations, one in the former vessel and two in the latter. The femoral artery and vein were pervious in their whole length, and the surrounding cellular tissue was not thickened. The vein and the nerve in the popliteal space were firmly adherent to the sac with a few of the fibres of the gastrocnemius muscle. The aneurism on the right side, larger than a cricket-ball, was also lying between the artery and the knee, to which it was firmly adherent. It was filled with laminated coagula, save at the back part, where there was still a small channel leading from the upper into the lower part of the vessel; this channel was rough throughout, and covered with recent fibrine. The upper opening of this channel was free and smooth; the lower one was small, and below it the artery was reduced to the size of the posterior tibial. Above the aneurism the coats of the artery were much thickened by atheroma, and here too, about an inch and a half above the tumour, was another small aneurismal dilatation. The femoral artery presented several patches of atheroma, but it was otherwise healthy, and, as well as the vein, pervious throughout its whole course: the surrounding cellular tissue was not thickened. With regard to the popliteal vein and nerve, the appearances were the same as those observed on the left side. The thoracic aorta was extensively affected with atheroma throughout a great part of its course, and it was somewhat dilated. In its arch, it presented three distinct aneurisms, one of which, the largest, was lying between the large vessels and the windpipe, into which it had burst by a small ulcerated opening, about an inch above the bronchi: the cavity of this sac was partly lined with long-standing coagula. The bronchi were filled with blood, in addition to which the lungs themselves presented several large patches of pulmonary apoplexy, and were extensively affected with emphysema. All the abdominal organs were healthy, excepting the kidneys, which were somewhat smaller than natural, rough on their surface, and with several small cysts in their structure.—*Lancet*, June 21, 1851.

31. *Treatment of Strictures of the Urethra.*—[G. J. Guthrie, Esq., in a lecture recently delivered before the Medical Society of London, draws the following conclusions in regard to the treatment of strictures of the urethra, which, as embodying the experience of this veteran and judicious surgeon, are entitled to great weight:—]

1st. That a hard and elastic, or an intractable stricture is never permanently cured by dilatation, or by the application of caustic, although it may be materially relieved by the regular periodical use of a dilating instrument.

2d. That the division of an old, hardened, or elastic stricture through the perineum is not usually followed by a permanent cure, although it is always attended by immediate relief; the disease being apt to return unless a solid sound or catheter is occasionally passed to prevent it.

3d. That the operation of dividing the perineum and urethra in such cases is sometimes attended by severe hemorrhages, by fever, and is occasionally followed by fistulous openings, giving rise to much inconvenience.

4th. That such division does, in some instances, effect a permanent cure.

5th. That the division of the urethra through the external parts should never be attempted in any portion of it anterior to the bulb, such operation not being necessary; for the narrowest stricture of the pendulous or movable part may always be divided internally with much less comparative danger than by the external incision, inasmuch as the instrument can be guided through this part by the finger and thumb of the left hand of the surgeon with a certainty almost unerring.

6th. That the stricture considered by all surgeons as the most important and difficult of cure—viz., at the termination of the bulbous portion of the urethra—may always be divided, when impassable, by a *straight* instrument, and in general more easily than by a *curved* one; the use of which is founded on the erroneous belief that the stricture is situated in the membranous part of the urethra, instead of being, as it is, anterior to it.

7th. That the division of a stricture should, if possible, be effected by an instrument passed through it, and cutting from behind forwards, rather than from before backwards, although a combination of both methods will frequently be necessary to insure success.

8th. That the division of a stricture by these means will not always insure a permanent cure if more than the mucous membrane is implicated, unless such parts be divided also.

9th. That in cases of intractable stricture, the mucous membrane, the inner layer of involuntary muscle, and the elastic tissue external to it, should be divided, when the operation is done from within, but not the outer layer of muscular fibres, which should remain as a barrier between the stream of urine and the common integuments of the external parts—an accuracy of division not always to be attained: whence, perhaps, the difficulty of effecting a permanent cure.

10th. That when a permanent cure is effected in these cases, the divided elastic wall of the urethra is not re-united by a structure exactly similar to itself, but by common areolar tissue, rendering the part more dilatable under the pressure of the stream of urine; the formation of which dilatation can be aided during the progress of the cure by pressing on the divided part with the point of a solid instrument passed daily for the purpose of preventing, if possible, that contraction which always takes place during the process of cicatrization; a proceeding which cannot be advantageously adopted when the parts are divided through the perineum, lest it should encourage the formation of a fistulous opening, to which there is always a tendency.

11th. That in cases of intractable stricture accompanied by one or more fistulous openings in the perineum, in *young persons*, or of middle age, the operation through the external parts, or along the urethra, may be resorted to at the pleasure of the surgeon with an equal chance of success, provided the division of the obstruction or bank preventing the free passage of the urine be effectually divided, the *sine quâ non* of the operation.

12th. That the operation within the urethra should always be preferred in *elderly* persons, particularly if somewhat stout or fat, as less likely to create

severe constitutional disturbance; and if this operation should fail from any cause, it by no means interferes with the due performance of the other through the perineum, which in serious cases then becomes imperative, as the last resource capable of giving relief.—*Lancet*, June 7, 1851.

32. *Four Cases of Ovariotomy.*—Dr. Elkington communicated to the Birmingham Pathological Society four cases in which ovariotomy had been performed, twice successfully, and the others with a fatal result, and exhibited the specimens.

Case I.—Was a fine specimen of fibrous tumour, the size of a large cocoa-nut, which had been developed in the folds of the peritoneum, and was accompanied by ascites. The following is a brief sketch of the history of the case:—

Mary Boyce, aged 37, mother of two children, became an out-patient of the Lying-in Hospital September 10, 1845. In 1843 she discovered a tumour, the size of a large hen's egg, in the right iliac region. The swelling gradually increased, and at the time of her application she was nearly as large as a pregnant woman at her full period.

December 11. She measures from the scrobiculus cordis to the pubes twenty-eight inches; from the umbilicus to the pubes fifteen inches; around the body at the epigastrium thirty-four inches; around the body at the umbilicus fifty-three inches; and midway between the umbilicus and pubes fifty-four inches; fluctuation is very distinct; dullness on percussion over the whole lower part of the abdomen; on pressing the fingers suddenly upon the right side, the ends strike against a solid mass; her health is good, but she suffers much inconvenience from the swelling and distension; the uterus is healthy, and *can be moved freely in every direction* with the uterine sound; there is prolapsus of the posterior wall of the vagina. About the end of December, she became so much distressed by the increased size of the swelling, that it was considered necessary to tap her. Thirty quarts of ascitic fluid were drawn off. After the operation, the solid tumour was found to be *very movable, and apparently free from adhesions*. It was supposed to be a fibrous tumour of the ovary. She rapidly increased in size again, and was obliged, in about six weeks, to be tapped a second time. This afforded her relief only for a short time, and she was obliged to have recourse to the operation nearly every month. At length she suffered so much, and became so very urgent to have the tumour removed, that it was decided, in consultation with two or three medical friends, to make the attempt.

The operation was performed in July, 1846, in the presence of Mr. Southam, of Manchester, Dr. Bell Fletcher, and many other friends. An exploratory incision was first made, the fluid evacuated, and as there appeared on introducing the finger to be no adhesions in the immediate neighbourhood of the incision, it was enlarged to the extent of five or six inches, so as fully to expose the tumour and its attachments. It was then found that it had contracted adhesions at the lower part of the fundus of the bladder, to the fore-part of the fundus of the uterus, and to the parietes of the abdomen immediately above the pubes, also above and behind to the intestines. These adhesions were considered of such a serious character as to preclude the possibility of completing the operation; consequently, the wound was carefully closed, and the patient put into bed. She died, on the fourth day, of peritonitis.

This case illustrates the difficulty of diagnosis as to the presence of adhesions. It has been stated that the tumour was very movable in all directions, and that the uterus was also readily moved from side to side with the uterine sound. This is readily explained. The adhesions were very long and loose, so as not to confine or interfere with the motions of the tumour or of the uterus.

Case II.—A cast of a large ovarian tumour of the multilocular kind, removed by operation. The tumour weighed fifteen pounds.

The patient, Mrs. L., consulted me October 6th, 1847. She stated she was 46 years of age, had been married twenty-five years, and had had five children. In 1830, she first perceived a tumour in the right iliac region; it remained stationary nearly five years. She had two children after its first appearance. In 1838 she had a severe illness, which continued some months. On recovering from this illness, the tumour was much diminished in size, and remained so

for six years; it then began to increase, and during the last two years has grown rapidly. On making an examination, I found the tumour occupying the lower half of the abdomen, and extending a little above the umbilicus, which was bulging out. The tumour appeared to be divided into two portions. There is fluctuation in the tumour, but it is felt more distinctly in some parts than in others. The swelling extended from the crista of one ilium to the crista of the other, resting against the pubes, and pressing upon the bladder. Percussion dull over the whole surface of the tumour, eliciting a clear sound in the lumbar regions. The integuments were tight, and not movable over the tumour.

Examination per Vaginam.—The uterus was situated high up, the os pushed forwards, no enlargement of the uterus. The sound passed to the extent of two inches and a quarter only. The uterus movable in every direction, but not freely so. Owing to the tumour being situated so low down, and pressing against the pubes, the fundus uteri cannot be traced externally.

Diagnosis.—Ovarian multilocular tumour of the right side, probably adherent to the parietes. The uterus healthy, but its cavity shortened by the pressure of the tumour.

I saw her again in February, 1848. She was much larger, and constantly suffering from pain and sickness, which continued to harass her till the beginning of May. She was then relieved from these distressing symptoms, but suffered so much from the increase of size, and from the difficulty of breathing, that she begged earnestly to have the tumour removed. I explained to her that it was an unfavourable case for an operation, and that we should probably find adhesions which would not only increase the difficulties of the operation, but materially lessen the chances of success. She declared that she would willingly incur the risk, and so anxiously entreated us to operate, that I consented on condition that Dr. Clay of Manchester, who was about to visit Birmingham, would give me the benefit of his great experience in such cases, and should approve of the measure. Dr. C. thought there were adhesions, but that it was a case in which we should be quite justified in operating. The operation was performed July 18th, 1848, in the presence of Dr. Clay, Dr. B. Fletcher, Dr. Mackay, and several other medical friends. The tumour was connected by extensive adhesions to the parietes at the fore and lower part of the abdomen, and to the edge of the omentum, which was spread out on the upper edge of the tumour. It was very vascular, and supplied by several vessels, which passed from the lower edge of the omentum to the surface of the tumour. Several vessels were secured. Upon the anterior surface of the tumour there was a deep groove passing directly across its centre, which caused the appearance of two tumours. The patient died 36 hours after the operation, apparently from the shock.

Case III.—A large ovarian multilocular tumour, which weighed at the time of its removal nearly forty-five pounds. The following is a short history of the case:—

Mrs. Moore, Walsall, consulted me June, 1848. She says she is 31 years of age, a dressmaker, married 15 months. She began to menstruate at 17; continued regular and in good health till about two months before she was married. She was then "unwell" every week or two, and had a copious discharge. A few weeks before her marriage she had frequently slight pain in the right side. About three months after marriage she began to increase in size, and after another month the swelling increased rapidly. The swelling first appeared on the left side. She was supposed to be pregnant. She lies down on the left side. Has prolapsus uteri. Is as large as if she were in the last month of pregnancy. The tumour is very movable, irregular, and nodulated. There is indistinct fluctuation, varying in its character at different points.

Examination per Vaginam.—After replacing the uterus, which was prolapsed, there could be felt no enlargement of that organ; the uterine sound showed that the length of the cavity was natural, and that the uterus was movable in every direction. She menstruates regularly. No enlargement of the breasts. With the stethoscope no bruit to be heard in any part of the tumour.

Diagnosis.—Disease of the left ovary of the multilocular form.

She continued to increase in size. In January, 1849, she measured 45 inches

round her; at this time she began to suffer very much from the great size and dragging of the tumour. Her breathing, too, was much embarrassed.

She was tapped on the 28th of February; a quart of thick gelatinous fluid was drawn off, slowly, and with difficulty; it then ceased. A second cyst was tapped, and altogether about five gallons of fluid drawn off, but the size of the tumour did not appear to be reduced more than one-half. In a month she was as large as ever. She now became very anxious to have the tumour removed, and as it seemed to be a favourable case for extirpation, and as there appeared no chance of tapping affording more than very partial and temporary relief, it was decided that we should have recourse to ovariotomy. The operation was performed on April 3d, in the presence of Dr. Clay, of Manchester; Mr. Fletcher, Walsall; Mr. Dehane, Wolverhampton; and several other medical friends. The tumour was so very large that, although the incision was extended to ten or twelve inches, we were obliged to empty one or two of the cysts before we could remove the tumour. Fortunately there were no adhesions of importance. The pedicle was broad, and was tied by a double ligature. The operation occupied about twenty minutes. She scarcely had a bad symptom after, recovered rapidly, and was out of doors in a month. The first ligature came away on the eighteenth, and the second on the twenty-first day. Her recovery was perfect, and she has continued quite well.

In April last (*i. e.* 1851) she was confined of a fine healthy girl; had an easy labour, and a rapid recovery.

Case IV.—The next was a beautiful specimen of fibrous tumour of the left ovary, weighing twelve pounds, removed by Mr. Day, of Walsall, from whose report the following short sketch has been taken:—

Mrs. Howard, aged 42, married twenty-one years, has had nine children. About two years and a half since she found an enlargement in the left hypochondrium, which gave her no uneasiness. She consulted Mr. Day about six months afterwards, who found a hard tumour the size of a cream jug, readily movable in every direction, and attached, as he imagined, by a thin pedicle to the left ovary. She afterwards became pregnant, and had a favourable labour. After delivery, Mr. Day made an examination, and found that the tumour was double the size it was before pregnancy, but still movable in every direction, and apparently quite free from uterine adhesion. She suckled her child twelve months. She gradually increased in size. In June, 1850, her health began to suffer, and she was obliged to wean the child. The swelling increased to such an extent that it became necessary to tap her on August 30th, when three gallons of fluid were drawn off. She refilled rapidly, and in one month was larger than before the operation. At this time Mr. Day says, "Her situation was truly deplorable, being unable to remain in either the upright or recumbent position without exeruciating misery, from dyspnœa and severe pain in the region of the liver and heart. But a very small quantity of urine was passed in the twenty-four hours. Diarrhœa was a distressing and constant symptom. She expressed herself suffering intolerable agony, and prayed for the operation to be performed, stating that otherwise she felt sure she must speedily die. Mr. Day operated September 26, 1850. He first drew off five gallons of ascitic fluid with the trocar; then passed a director through the opening made by the trocar, and laid open the abdominal cavity to the extent of five inches, and having ascertained that the tumour was free from adhesions, he continued the incision upwards, making use of his fingers instead of a director, to within a short distance of the ensiform cartilage. He also extended the incision below nearly to the pubes. The tumour being then completely brought into view, was found to be attached by a broad but thin pedicle, about three inches in width, to the left broad ligament of the uterus. The pedicle was secured by a double ligature, and divided close to the tumour. The operation was concluded and the patient in bed in fifteen minutes. The first ligature came away on the twelfth, and the second was removed on the fifteenth day. It was followed by a small quantity of discharge, which had the appearance and smell of feculent matter, but the discharge soon ceased. Her recovery was slow and for some time doubtful. She suffered much from diarrhœa, sickness, and an aphthous con-

dition of the mouth and fauces. She was able to walk in the garden on the 31st of October, and from that time gradually recovered her health and strength. *Provincial Medical and Surgical Journal*, Aug. 6th, 1851.

—

33. *Case of Ovariotomy successfully performed.* By JOHN BEALES, M.R.C.S. ("Proceedings" of Royal Med. and Chirurg. Soc., June 24, 1851).—In the early part of September, 1850, the author was consulted by a woman, aged thirty, unmarried, for an enlargement of her abdomen, which she had first noticed on the left side in the previous December. Latterly she had suffered from loss of appetite, loss of strength, and wasting of the legs and arms. The author found an ovarian tumour, hard to the touch, in the left iliac region and left hypochondrium, but soft and fluctuating on the opposite side, evidently in two distinct sacs, movable, and free from tenderness; and he was induced to recommend its removal. The operation was performed on the 4th of December, under the influence of chloroform. The incision was ten inches in length, extending from the scrobiculus to the pubes. Two cysts were punctured, and their contents removed, before the tumour could be removed from its cavity; the pedicle was tied by means of a double ligature passed through its base, and the tumour was then separated as near as possible to it. The uterus and right ovary were healthy. Everything went on favourably after the operation. On the 15th she was able to walk about the room. On the 25th the ligature came away. The tumour was three feet two inches in its largest circumference, and two feet one and a half inch in its smallest; it weighed twenty-five pounds; it was multilocular, marked on the surface by bands of white fibrous tissue corresponding with the septa of the cysts. The author then gives a description of the walls of the cysts. The cysts varied very much in size, and in the density and tenacity of their contents; in the smaller ones the fluid was clearer and thinner. The average specific gravity was 1010, but the fluid contained a very large quantity of albumen. The total quantity of fluid was from twenty-one to twenty-three pints.

[A full detail of this case has been published in the *Prov. Med. and Surg. Journ.*, July 23d, 1851.]

—

34. *An Ovary removed by mistake for a Labial Cyst.*—At one of the late meetings of the Surgical Society of Paris, M. GUERSANT, Chief Surgeon to the Hospital for Children, brought forward a case in which an error in diagnosis was committed, and which ended fatally. The patient was a little girl, eleven years of age, who, ever since she was one year old, had in the left labium a small painless tumour. Of late, however, this tumour had become troublesome, and interfered with walking. When examined, it was found of the size of a small walnut, situated in the thickness of the labium, and extremely movable, so much so, that it could be pushed downwards to the most posterior portion of the labium, and upwards as far as the external ring. It was, however, impossible to press the tumour into the ring, which latter presented no abnormal dilatation. The tumour had a great deal of analogy with a testicle. M. Guersant looked upon it as a cyst, and resolved to remove it. A longitudinal incision brought into view a membrane much resembling tunica vaginalis, and having the aspect of the peritoneum. Through this membrane an ovoid body was observed, which was no other than the ovary; it was attached to a pedicle formed by the Fallopian tube, which ran into the abdomen through the inguinal canal. M. Guersant placed a ligature on the pedicle, and cut out the ovary. Acute peritonitis occurred the very next day, and the patient died on the third day after the operation. M. Morel mentioned during the discussion that he had had an opportunity of seeing a tumour of the same kind in the labium, and formed by the ovary; no modification of size or sensibility was noticed to occur at the menstrual period. M. Lenoir stated that Pott has related a case in which the two ovaries were removed by an error in circumstances analogous to those of M. Guersant's patient.—*Prov. Med. and Surg. Journ.*, Aug. 6th, 1851.

—

35. *Serious Hemorrhage following Excision of the Tonsils.*—The following instructive case forms the subject of a memoir by M. CHAISSAIGNAC (*Archives Générales*, Mai).

The patient, a female, aged 21, was the subject of enlarged tonsils, one of which had been removed eight days before by M. Sandouville. The operation had been quite successful in its immediate results. The author was summoned in consequence of an uncontrollable spitting of blood. On looking into the throat for the purpose of discovering the exact seat of the hemorrhage, M. Chaissaignac found that it proceeded from the bottom of a concavity left by the excised tonsil.

The patient had been for some time constantly spitting blood, and had also vomited a large quantity. The pulse was small, the extremities cold, and altogether she was in imminent danger. Many means had been adopted without success, such as ice externally, and styptics of various kinds internally.

The first proceeding adopted by the author was to make pressure on the bleeding surface with lint dipped in lemon-juice. This controlled the bleeding for a time, but after he had left it returned with equal intensity. He now intended to apply the actual cautery, but before resorting to this it occurred to him to try keeping up pressure on the tonsils with lumps of ice. This was done with the aid of forceps, and was completely and permanently successful.—*Prov. Med. and Surg. Journ.*, July 23, 1851.

—

36. *Diaphragmatic Hernia of the Stomach, Spleen, and Colon.*—This curious case is published in the *Revue Médico-Chirurgicale*, Juin, 1851. The patient, aged 59, was admitted into the Hôtel Dieu of Nantes, in June, 1850, complaining of pain in the epigastric region, constant vomiting, cough, and purulent expectoration. He died at the end of three weeks. After death the stomach, omentum, spleen, and a portion of the colon, were found in the thorax, having passed through an opening to the left of the pillars of the diaphragm; the opening had smooth edges, and did not exhibit any appearance of laceration. There was no trace of inflammation, either in vascularity or adhesion, so that the inference was that the hernia was congenital, and that the vomiting towards the close of life was in some way connected with the state of the lungs, which were full of phthisical excavations.

—

37. *Excision of the Astragalus, successfully performed for Fracture and Dislocation of that Bone.*—Although the history of fracture with dislocation of the astragalus, requiring the extraction of the bone, has been succinctly written, there are comparatively but few cases on record, so that the following instance by M. Thore (*Archiv. Générales*, Mai) is not without value:—

A young man, working in a stone quarry, had his right foot crushed by a fall of stones and earth. When first visited, the foot and leg were enormously swollen, so that it was difficult to ascertain the nature of the injury. The foot was, therefore, enveloped in poultices. Five days subsequently a gangrenous odour was perceptible, and bullæ appeared filled with fetid sanies. At the external aspect of the foot the skin was sloughing, and a portion of the astragalus projected, and was movable in all directions.

Two days after the author decided to extract the bone. After enlarging the wound, the bone was seized in strong forceps, and the ligamentous structures being divided it was readily extracted, leaving a large and deep excavation.

The report five days after the operation is, that the appearance of the limb is much improved, the gangrene diminishing, and cicatrization commencing in certain portions of the wound. Several splinters were extracted, and phlegmonous erysipelas ensued, requiring several incisions for the purpose of evacuating pus; but on the subsidence of this the patient made rapid progress.

An examination of the limb was made at the expiration of the year, when the following were the appearances: Above and immediately behind the external malleolus there was a deep semicircular cicatrix. There was no trace of callus either on the tibia or fibula. The external malleolus is more prominent than the other. The concavity of the sole of the foot was little changed. The foot, which was for a long time movable in every direction, was at this time quite anchylosed. The patient could walk and even dance without pain, and with facility.

MIDWIFERY.

38. *On Obstetric Practice of the Vienna Lying-in Hospital.*—Dr. Arneth read the following interesting communication to the Edinburgh Obstetrical Society at the meeting April 9th, 1851:—

I have now been connected for three years with the Lying-in Hospital in Vienna, as assistant to one of the Professors of Midwifery in that institution, in whose wards more than 10,000 women have been confined during that time. In the other midwifery clinique, in the same hospital, the number of labours during the same period was still greater; and, through the kindness of my colleagues, I had an opportunity of observing all the important and interesting cases which occurred in their department.

In a woman affected with *abnormal vertical inclination of the pelvis*, there occurred a *central laceration of the perineum* during labour, and through which the child was born. The fourchette anteriorly, and the anus posteriorly, were uninjured.

In the cases of two women, there occurred *prolapsus* of the womb at the full term of pregnancy—in the one complete, in the other incomplete. In both cases reposition of the mass was effected, and labour soon supervened.

There were forty cases of face presentation, and in these thirty-five children were born alive; but of these last, four died in the first days after birth. Two of the mothers died. In no case was instrumental interference resorted to; and for fifty years such has been the practice in this hospital.

Twice (once after a very easy forceps case, and once after a natural confinement) a small part of the os uteri, covered with exudation, was expelled with the discharges. In the second case alluded to, the woman was examined on the ninth day after confinement, and there was found a sharp edge in the os uteri, indicative of the spot where the portion had separated. Both mothers did well.

A patient, in whom the portio vaginalis had been amputated two years previously, became pregnant. The os uteri did not open spontaneously at all when labour came on. Incisions were made in different directions, and shortly afterwards delivery took place. The mother sank ten hours after birth. Post-mortem examination showed old adhesions of the uterine peritoneum.

Incision of the cervix uteri was required only in a single other case, one of carcinoma of the cervix. In this case the mother did well.

Two cases of carcinoma uteri occurred. Living children were born, and the mothers made very good recoveries.

Cæsarian section was never performed, except in cases where we believed the narrowness of the brim of the pelvis to be so great as to render it impossible to drag the perforated child's head through it with safety to the mother. So strictly has this rule been kept, that out of somewhat upwards of 200,000 confinements that have occurred in the Lying-in Hospital of Vienna, between the years 1789 and 1851, the Cæsarian section has only five times been resorted to. All the five mothers died. The children survived the operation, and of some of them there were accounts some years afterwards. Professor Dubois has informed me that he had performed the operation twelve times without having had any successful case; nor is he aware of any practitioner in Paris having been more fortunate. Professor Stoltz, of Strasburgh, lately informed me that he had operated four times out of six with good success—nay, in one case, he was even fortunate enough to see a mother twice surviving this dreadful operation. Everywhere, on the Continent, it is an established rule to perform Cæsarian section in every case of a mother dying pregnant in the seventh month, or later. The essay of Bouchut, which has lately been crowned with the prize of the French Academy, proves that with the last pulsation of her heart the mother dies, and that, consequently, the operation of Cæsarian section may be performed immediately afterwards. In four cases, children were saved by the operation in the Vienna Lying-in Hospital. Two of the mothers died of phthisis, one of eclampsia, one of gangrenous inflammation of the cellular tissue of the neck.

It is a curious fact that—whilst in all cases of midwifery we are bound most carefully to save the lives both of mother and child, and, when that becomes impossible, to do everything in our power for the benefit of the one life we hope to save; that in cases of mortal wounds inflicted upon the mother, or of her being in articulo mortis *for a considerable time* (where the mother is unconscious, and where there is not the least hope to see her restored)—accoucheurs too often delay the operation till unfortunately the child in utero is dead. We are of opinion that, in such cases, and more particularly if we ascertain that the child's pulse is becoming slower and weaker, the Cæsarian operation ought immediately to be performed.

A very frequent cause of the child's death during labour is prolapsus of the funis. We are of opinion that, under certain conditions, the following mode of management has been, generally speaking, much neglected; we mean the artificial replacement of the funis. When the head is presenting, and still movable on the brim, and the os fully dilated, the best plan is to push the funis back, and lay it down in the hollow of the neck of the child. The registers of the Vienna Lying-in Hospital contain forty-three cases of this reposition of the funis. In these, thirty-eight children were born living; and it is only fair to state that, in three out of the five cases of failure, there was scarcely any pulsation in the cord at the time when it was pushed back; and in one other case where the operation had been performed, the labour proved so slow that the forceps were applied for inertia uteri. No hospital report, as far as I know, affords better results of the treatment of a large number of cases of prolapsus of the funis.

The whole prolapsed loop of the funis is taken in the hand, and, pushing the child's head a little back, we lodge it in the hollow formed by the child's neck. It is not necessary to say that the funis is in this way protected on one side by our hand, and on the other by the hollow of the neck, in which it is allowed to lie. There is no reason to fear the occurrence of any injury from compression of the child's head. This operation does no injury to the mother; and, by exciting the uterus to fresh contractions, it sometimes renders the confinement much shorter.

In the cases which have come under my care, the funis, after being replaced, has prolapsed again in only one instance. It was again replaced with complete success. I know, however, the particulars of one case of frontal presentation, where the funis so tightly embraced the forehead of the child that reposition was found impossible.

Sometimes, when it is impossible to feel any pulsation in the prolapsed funis, the child may be still alive. Four such cases came under my notice, where the funis had been pulseless for so long as half an hour, and the children were born living. As there is rarely time, in such cases, to make use of auscultation, my opinion is that, in all cases fit for reposition, it should be performed, unless the funis be very cold and discoloured, or other decided symptoms of the child's death be present.

In the 6608 cases that were under my care, operative interference was resorted to 95 times—that is, nearly once in every 70 cases; 11 of the 95 mothers died—that is to say, 1 out of every 9.

62 children out of the 95 were born living, and 49 survived the ninth day after their birth—that is to say, the day when they used to be dismissed from the institution; so that we lost sight of them after that time.

Turning was resorted to 44 times, or once in every 150 cases; the forceps were used 45 times, or once in every 146 cases; the child's head was perforated 4 times, or once in every 1652 cases. Premature labour was induced twice.

In the post-mortem examinations of some women who died of spontaneous rupture of the uterus, we are at once struck with the immense increase of the size of the fundus uteri, whilst there does not appear to be a similar state of the cervix. It is highly probable that, in such cases, the rupture is brought on by the immense force exercised by this hypertrophied part of the fundus, and which the cervix is unable to resist. The direction of the laceration laterally speaks for this view. The occurrence of rupture is much favoured if the texture of the mucous membrane has been softened by a previous inflammation.

In one case of rupture, the peritoneum alone was affected. The laceration was situated over the fundus of the uterus, and was several inches in length.

One case occurred, in which a woman complained so much of violent burning pains in the abdomen, and was so affected with dyspnœa, that the use of the forceps was deemed necessary. The operation was easily performed. The peculiar characters of the dyspnœa, the complete arrestment of the action of the diaphragm, and the similarity of this symptom to what had been witnessed in a previous case of rupture of the uterus, led us at once to diagnose this as also a case of rupture. For some days after delivery these symptoms almost disappeared, and the pulse improved in character; only a minor degree of asthma persisted. On the seventh day after delivery she commenced to sink, and died suddenly. The uterus was found ruptured at the cervix, but the peritoneum was entire.

There were thirteen cases of eclampsia; four of the mothers died, eleven children were born living. Only one breech presentation occurred; it was in a twin case. All the other children presented with the head. In six cases we resorted to the forceps; the other cases were terminated without artificial interference. We cannot agree with the opinion of Ramsbotham, that the disease occurs most frequently in hot seasons, as there was only one case in May, two in April, four in February, one in December, two in November, two in October, and one towards the end of September. Most of the children (ten) were males; the mothers were, generally speaking, young females, pregnant for the first time. In the post-mortem examinations no morbid symptoms were discovered in the brain. Our treatment consisted in bloodletting, cold water dressings on the head, and the use of tartar emetic. It is worth notice, that very generally after the coma that follows the convulsions, and lasts occasionally for many days, there is to be observed a state of forgetfulness, being sometimes the only remainder of this dreadful disease. I repeatedly saw women who had not the least desire of denying their being pregnant, who could not recollect at all the particulars of their confinement—nay, even of their having been pregnant. This circumstance is most interesting also in a medico-legal point of view.

In the following case chloroform proved very useful. A recently confined woman, who, as she told us, had never suffered from spasms of any kind, complained, a few days after natural labour, of fever and pains in the abdomen. These symptoms, however, subsided in a short time. A few days afterwards she suddenly began to howl like a dog, to contract her face in a most ridiculous manner, and to be exceedingly restless. As often as we put some chloroform under her nose, she regained her consciousness, and, when asked, complained of no pains at all; but the aforesaid symptoms reappeared immediately when the chloroform was removed. These symptoms lasted for three hours, when we put her, by means of chloroform, into profound sleep; at once all the symptoms yielded, but re-appeared in a few minutes after she awoke. I applied chloroform for a second time, and allowed her to remain under its influence for about one hour and a half. After that time she remained entirely free from the symptoms of threatened mania.

From the few cases where chloroform was used in our midwifery practice, and these were all cases of long-lasting and exhausting operations, it would appear that this medicine has a particularly soothing influence on the vascular system; for in all these cases the heart's pulsations were, after delivery, scarcely quicker than in a healthy person; and I may here observe that, in the Vienna Hospital for the last two years, nearly all surgical cases have been anæsthetized when operated upon.

In cases of hemorrhage after delivery, if there are no clots or portions of the afterbirth in the womb, contractions are, if possible, excited first of all by frictions. In the very rare cases where the frictions have no effect, we resort to cold water dressings externally; and if these prove inefficient, we inject cold water into the uterus. This treatment has been so successful that, out of more than 20,000 cases that occurred in the clinique since 1833, there are only two cases on record of women dying of post-partum hemorrhage; that is to say, one of a woman where assistance was only resorted to when she was already mori-

bund, and the second a female taken with small-pox, where every means proved inefficient.

In the period extending from 15th October 1847 to the end of October 1848, only one out of 128 mothers died. The mortality increased in November, and still more in December, when one mother died out of every fifteen delivered.

These unfavourable results were undoubtedly caused by the political events of that period. It is not necessary to state how depressed in the mind the most of the women confided to our care must have been at a time when their friends, fathers, and brethren fought either in the ranks of the rioters or in those of the soldiery. But, moreover, one of the wells that supplied some of the yards of the large hospital with water was destroyed by the troops. The consequence was that that cleanliness could less effectually be looked for which we may boast is maintained at other times in our hospitals. The supplies of straw, coverlets, and so on, were also intercepted.

Towards the end of October, when the stores were almost exhausted, and no fresh provisions arrived, many women were confined, and the consequent disease became more fatal in December.

The first cases of puerperal fever that came under our care, showed in their beginning no other symptoms than sores near the fourchette that extended widely into the vagina, and over the perineum. They appeared about the sixth day after confinement, were uneven, of a grayish colour, and covered with a corroding matter; they bled very seldom. Sometimes they healed by granulation, but this went on very slowly, the patients meantime becoming extremely emaciated. Other cases proved fatal, the post-mortem examinations showing inflammation of the mucous membrane of the uterus and of the peritoneum, and, more generally still, of phlebitis.

In the subsequent course of this epidemic of puerperal fever, peritonitis, at other times peritonitis combined with pleuritis, were the more general symptoms. In the course of three days I had the sad opportunity of seeing two cases of phlebitis, ending in the destruction of the eyeball by metastatic purulent deposits. In the first case, only two hours, in the second, eight hours, elapsed between the first symptoms of disease appearing in the eye, and the lamentable catastrophe. It was highly interesting to observe how entirely puerperal fever ceased in our wards after cholera made its appearance. During the month of May and the first days of June, eleven mothers died of puerperal fever; on the 10th of June we saw the first patient under cholera, and had occasionally cases of it till the 11th of August. During this whole period we had only very few patients complaining of the slighter puerperal symptoms, in no case ending fatally. Almost immediately after the disappearance of cholera, the cases of puerperal fever became somewhat more frequent, and decidedly more dangerous.

Prof. Kiwisch, late of Wurzburg, now of Prague, has recommended a new method of inducing premature labour, which, being decidedly the least troublesome and the least dangerous to the mother, has now been repeatedly resorted to, both by Professor Kiwisch and the leading men of the Vienna midwifery department. This means consists in the use of a douche of tepid water falling from a height of about ten feet, the stream being allowed to impinge upon the os uteri, and thus to open it in a short time. This plan is peculiarly adapted for cases of contraction of the pelvis, where you have sufficient time to use any advisable method to bring on premature labour. It is much less serviceable in cases of urgency, as it is quite impossible to state beforehand how many applications of the douche will be necessary for that purpose. The average hitherto has been about ten applications; we used to apply them twice a-day for a quarter of an hour each day.—*Monthly Journal Med. Sci.*, July 1851.

—

39. *Method of inducing Premature Labour.*—Dr. Moir made the following statement to the Edinburgh Obstetrical Society, as to a mode of *inducing premature labour*, which had been first adopted, he believed, by the late Dr. Hamilton, and which Dr. Moir and his father had almost invariably practiced, with very considerable success. Dr. H., conceiving that many children were in these cases

lost by the pressure on the head consequent on the premature rupture of the membrane, then the usual method of inducing premature labour, tried the plan of gently opening and dilating the os uteri with the finger, and, if the pelvis was very deep, cautiously using some rounded blunt instrument, such as a large-sized male bougie, with the view of separating the membranes from the surface of the uterus for two or three inches up from the os uteri all round; this being repeated every second or third day, according to circumstances. The consequence of this procedure was that in eight or ten days at the most the os uteri became considerably opened and relaxed, the membranes protruding somewhat; so that, when labour came on, everything proceeded very much as in a favourable natural labour. If, however, labour did not come on in eight or ten days, he took a male catheter, from which the point had been cut off, and introduced it for some four or five inches along the posterior surface of the uterus, between it and the membranes; then turned the point inwards towards the membranes, and then pushed forward to the extent of the eighth or tenth of an inch the point of a silver wire which had been previously lying within the catheter to its very point. With this he penetrated the membranes, and allowed two or three tablespoonfuls to escape along the catheter, and then withdrew it. The pressure of the uterus on the puncture prevented further escape of the water; and in every case but one, where Dr. M. had to repeat this puncture, labour came on within thirty-six hours—the membranes at the os uteri remaining entire, and assisting to dilate the os uteri. Dr. H. had thus operated between forty and fifty times for deficiency of space in pelvis, and all the children except four had been born alive.

Dr. M. and his father had performed it above twenty times, and, though not with so much success to the infant as Dr. H., yet all the parents had recovered perfectly, and in almost every case when the child was lost, it arose from its being still too large for the aperture through which it had to pass; and even then, these cases had this advantage, that the mother suffered less than if she had been allowed to go on to the full time, and recovered rapidly.—*Ibid.*

40. *Induction of Premature Labour.*—Dr. Simpson observed, in a discussion at the Edinburgh Obstetrical Society, in relation to the induction of premature labour, that for many years past he had followed the plan of dilating the os uteri, and perhaps, he might add, separating the membranes also, by the introduction of sponge tents. He thought it a more certain, more efficient, and more safe mode, than any of the others that were used. He had now employed it in numerous cases, without ever finding it once to fail; always with perfect success in regard to the mother, and in a large proportion of cases with safety as regarded the child. It had the advantage, like Dr. Hamilton's plan, of not rupturing the membranes; and thus allowed the child to be protected by the presence of the liquor amnii during the process of labour. It also had other advantages. It was, Dr. S. believed, more easy of employment than almost any other method. When adopted, and when the os uteri was dilated by a succession of sponge tents, the first stage of labour (that is, the dilatation of the os uteri) was really in many cases to a considerable extent accomplished before labour itself began; and consequently the child was saved from the pressure, &c., incidental to the earlier and sometimes protracted part of the first stage. It was, as a general rule, speedier in its operation than any other plan proposed. Dr. Arneth had seen with Dr. Simpson a case in which Dr. S. employed it. In this instance labour pains came on within two hours after the first tent was introduced. In the same patient, in her last confinement, when premature labour was also brought on, the whole process of delivery was over in twelve hours after the induction of premature labour was commenced by the introduction of the first sponge. Latterly, in using sponge tents for this purpose, Dr. Simpson had always begun by introducing a pretty large tent, one at least as thick as the little finger; and (sometimes without withdrawing the first) he has introduced a larger and larger size every six or eight hours. Usually, he requests tepid water to be thrown up into the vagina every hour or so after the first tent has been introduced. This of course is with the view of supplying a sufficient

quantity of fluid to expand the compressed sponge. Dr. Simpson had tried in one case lately, the plan mentioned by Dr. Arneth, of injecting tepid water. It was in an instance where the patient had repeatedly found the child to die a short time after quickening, and retained it for six or eight weeks subsequently. During her last pregnancy, the same occurrence took place with the same symptoms. A few weeks having elapsed, she threw up tepid water, at Dr. Simpson's request, twice a-day, with a view of bringing off the dead fœtus. After nine douches, applied night and morning with a common syringe, expulsive pains came on, and a dead and shrivelled fœtus and placenta were expelled. As to the mode in which the injection of tepid water acted in inducing premature labour, Dr. Simpson had some doubts whether Kiwisch's explanation of it, that it led to relaxation of the soft parts by the imbibition of the water, was a true explanation. He had a belief that, when a douche of tepid water was strongly thrown into the vagina, it did not always escape readily out of the vaginal orifice, but accumulated in that canal, and by its accumulation and distension opened up the cervix uteri, and ultimately even separated the membranes. If it acted by mere imbibition, then Dr. Simpson imagined that it might be of use in midwifery in a way not thought of by Kiwisch. If we had any means of relaxing the soft structures of the mother for two or three days before delivery, we would be enabled to curtail the duration of labour, and consequently to diminish its mortality. We might in this way, for example, make first labours as speedy and hence as safe as future ones, which at present they by no means are. In Great Britain, if all the children born for one year were girls and no boys, Dr. Simpson had elsewhere attempted to show that six or seven thousand infantile and maternal lives would be preserved. And if we could make the birth of boys as expeditious as that of girls, a great number of lives would be saved annually. The question recurs, would douching the vagina for two or three days before delivery, produce such a relaxation of the maternal passages as to facilitate labour to the requisite extent?—*Ibid.*

—

41. *Epidemics of Puerperal Fever.*—In an extremely interesting discussion which took place at the meeting of the Edinburgh Medico-Chirurgical Society, April 16th last, on the reading of a paper by Dr. Arneth on a cause of puerperal fever at the Lying-in Hospital of Vienna, Dr. Moir made some remarks on a few of the epidemics of puerperal fever in hospital and private practice, as detailed in the late Dr. Hamilton's lectures, and on some facts tending to prove the contagious nature of that disease.

1. During 1814 and part of 1815, nine women had puerperal fever in the Edinburgh Lying-in Hospital, and only one recovered.

2. In 1830, between 18th September and 5th November, out of forty-eight patients delivered, eighteen had the disease in a well-marked form, of whom sixteen died; the two who recovered were the last cases, and insisted upon being taken home to most miserable apartments. They both slowly recovered—one after the discharge of a considerable quantity of dark offensive matter per vaginam.

3. During the above epidemic in 1814-15, three cases occurred in the private practice of the matron of the hospital, who at that time was much employed as a midwife.

4. In Dumfries and neighbourhood, during 1813, twenty-seven individuals in the better ranks died from this affection in about six weeks; and only one affected with it recovered—a discharge of pus from the umbilicus having in her occurred about two months after delivery.

5. In the summer and autumn of 1823, Dr. Kellie had a number of cases in Leith and its vicinity. The first cases occurred at Inveresk, early in May; and the fifteen patients whom he delivered in succession afterwards, or sixteen in all, were affected with the disease, and all died.

6. Dr. Hamilton saw one of these cases in consultation on the 6th May. On the 8th, he delivered a lady of her third child in Gayfield Square; she had the disease, and died on the eighth day.

7. In May and end of June of the same year, Dr. H. saw two cases with the late Dr. Beilby, one of whom recovered. On the 7th July, he delivered a lady of

her first child, after an easy labour. On the fourth day she was seized with the disease, was bled copiously more than once, and sunk next day.

8. Dr. M. mentioned several instances of individual pupils of the hospital having had a succession of cases in various quarters of the town; while other pupils, as extensively engaged at the same time in midwifery practice, and in the same localities, had none.

9. Dr. M. read the copy of a letter, sent in Feb. 1824 to Dr. H. by a Dr. Reid, an old pupil, in which he says: "That puerperal fever is contagious, I think I shall be able to adduce some tolerably good proofs. In 1817 I visited Ireland, and attended gratuitously a number of poor. The third woman I attended in labour was attacked with puerperal fever; and from that time not one escaped it who came under my care. After my return to London in the autumn, I was called to a labour, on which occasion I happened to be dressed in some of the clothes I had worn in Ireland; and that woman was seized with the fever, as were two others, whom I attended a few days subsequently. On a voyage to New South Wales, several weeks afterwards, in the Atlantic Ocean, a soldier's wife was taken in labour, and, being badly provided with necessaries for the occasion, I gave her some old sheets, and a piece of garment, which had been packed in one of my trunks at the time I was attending the puerperal cases in London; and she was attacked with the fever two hours after delivery. Four other women were confined on the voyage, and all had the disease."

After commenting upon the contagious nature of this fearful disease, as indicated by the preceding facts, Dr. M. stated that it was mentioned in Dr. Hamilton's lectures, that when puerperal fever prevailed in the lying-in ward of the Royal Infirmary, all the sores in the surgeon's ward, which was on the same floor, were in a very bad condition; and erysipelas followed every operation, however trifling; and that Dr. Kellie had also observed that, during his attendance on the cases occurring in his practice in 1823, there was inflammation of one or more veins of the lower extremities, accompanied in some with erysipelatous efflorescence on the surface. From which facts Dr. H. had, at one time, concluded that there was a strong connection between erysipelas and puerperal fever, though he changed this opinion in after life from not finding them always to go together.

Dr. M. next related at length the particulars of three cases which had occurred lately in his own practice, and which in several ways deserved the consideration of those engaged in obstetric practice. He delivered a patient, A., on the 8th February, at midnight; another, B., early on the morning of the 9th; and on the 10th, in the afternoon, a third, C. The infant of A. having died early on the morning of the 10th, and, it being wished to ascertain the cause of death, Dr. M. opened the body that evening, some time *after* having delivered C., and, much to his surprise, found the cavity of the right pleura so completely filled with a sero-purulent effusion, that no air had penetrated that lung, which was otherwise quite healthy. He ordered the nurse not to approach his patient till she had changed her clothes, and washed carefully with chloride of lime; and he did the same. On the morning of the 14th this nurse was found feverish, and suffering considerable pain in one arm, from inflammation of the lymphatics. It was ascertained that she had pricked her finger a short time previous to the opening of the baby, some of the matter from which had doubtless been absorbed, and given rise to the above symptoms. Dr. M. afterwards visited A. and B., about ten o'clock; and did not see C. till next day. On the evening of the 12th, A. had slight rigors; on the 13th and 14th, pulse was very rapid; but on the 15th fell to 80, and she seemed altogether better; but that evening rigors again supervened; the pulse became rapid, and skin variable. Erysipelatous efflorescence appeared soon after on the left leg. Tympanites also supervened some days before death; but there was from the first little or no pain or uneasiness of abdomen, or of any part of the body, except the knee of the affected leg, and the back of the shoulder and right side for three or four days before death, which occurred on the 24th. The appearances on dissection were unusual, there being no trace of peritoneal inflammation or its consequences, and no apparent affection of the uterus, its appendages, or vessels, except redness of one of the Fallopian tubes, and in two small spots a substance, of a whitish colour,

apparently like pus, where the placenta seemed to have been attached. The left knee-joint was distended with sero-purulent fluid. The muscles and cellular membrane on the back of the shoulder and right thorax were infiltrated with a dark sanious fluid. The large veins were distended with blood, and their walls thin and almost transparent, but their internal coat healthy. The blood in the great veins very fluid, watery, and uncoagulated; and, when examined microscopically, containing white corpuscles in greater numbers than usual.—B. was seized, early on the 13th, with rigor and violent pain of abdomen, which continued for nearly a fortnight; during which time effusion took place into one pleura, and soon after it into the other; but, though exceedingly prostrated and worn out, she is still (about a month from the attack) alive, and it is hoped may recover.—C. was also seized with rigor early on the 13th; pain confined to the uterus, which was hard and painful on pressure; was leeched over it, and so far relieved that on the 15th her pulse was in the morning down to 90, and soon after mid-day to 72; yet the symptoms became aggravated, and she died on the 19th.

Dr. M. called the attention of the members to the great difference of the local symptoms in all the three cases; the pain in C. being chiefly confined to the uterus; in B. to the peritoneum generally, the whole abdomen being exquisitely tender to the touch; while in A. there was neither pain of the abdomen nor of its contents during life, nor morbid appearances after death, with the slight exception already mentioned. And he lastly requested their particular attention to the probable exciting cause in the three cases, or to the manner in which the disease had been communicated; because, believing, as he did, in its contagious nature, it appeared to him a question of great importance to trace out the cause. At first sight, it might appear that the most probable cause was the communication of some morbid matter from the opening of the fœtus, it being admitted that the application of the inflammatory products effused on mucous or serous surfaces may communicate the disease, as amply proved by Dr. Arneth's paper, as already read; but, on more particular attention to the subject, there were several great difficulties in admitting this as the cause in these cases, as all the patients had been delivered *prior* to the opening of the body; as the hands were well cleaned with chloride of lime, and the clothes changed, before *two* of the patients were visited that night, and as the *third* was not seen till next day, and as in none was any vaginal examination made by Dr. M. *subsequent* to the sectio. Dr. M. then submitted what to him appeared, on a careful review of all the cases, as the cause. He believed that there must have been some peculiar condition of A.'s system, which had been not only the cause of the disease discovered in her infant, but also of the subsequent symptoms in her own case, and which had communicated to Dr. M. some virus or *materies morbi*, which had been the means of inducing the disease in the other two patients. In support of this, there was: 1st, the state of the infant, which was well grown, and in every way healthy, with the exception of the sero-purulent effusion into the right pleura; and that this was dependent on some morbid condition of the mother, was borne out by there being, 2d, for some days previous to labour coming on, a feeling of occasional faintness and of listlessness, very foreign to her usual habits; 3d, by the difference in the nature of the labour, which on former occasions was generally very rapid, and without premonitory symptoms—whereas, on the present occasion, besides supervening a fortnight before her full period, there was a threatening of labour for four days, during the whole of which time Dr. M. was frequently in attendance on his patient, often for a considerable period at a time; 4th, by the scanty or almost total want of secretion of milk, whereas on all previous occasions it was very abundant; 5th, by the slight rigors, which in attacks of puerperal fever are generally more severe; 6th, by the total want of the usual local pain in the regions of the uterus, its appendages, or the peritoneum; and 7th, the appearances after death. From the preceding facts, Dr. M. inferred that the disease in this case, A., was the result more of some primary morbid state of the system than connected with any local cause, such as the application of morbid matter to the vagina; that, moreover, this condition had existed prior to delivery, as indicated by the state of the infant, and the symptoms both prior

and subsequent to delivery; and lastly, that, as he had been in such close attendance on this patient for four days, he most probably was the means of conveying some infectious matter to B. and C., the former of whom was delivered about two hours after he left A.'s house subsequent to her delivery, and the latter on the next day.—*Ibid.*

42. *On the Contagiousness of Puerperal Fever.*—Dr. Simpson made the following interesting observations on this subject, in a discussion at the Edinburgh Obstetrical Society. He expressed a similar opinion of Dr. Moir's series of cases to what Dr. Moir himself had given—viz. that the original focus of contagion in them was to be traced to the diseased blood and tissues of the mother who was first delivered and first attacked—that her blood had affected the infant which she carried within her—and that probably the vaginal secretions and discharges from the said patient during labour had unhappily formed the virus or material which had been unwittingly carried by Dr. Moir, so as to affect his other patients. It was only by careful and searching analysis of cases of puerperal fever, like Dr. Moir's, when they did occur, that we could hope ultimately to arrive at a knowledge of all the various ways and means in which the disease may originate or be spread, and consequently of all the different means which may be adopted to prevent its spreading. Dr. Hill of Leuchars has described one instance which was interesting in this respect, that, as in Dr. Moir's, both the mother and the child seemed affected before delivery. A carpenter had his hand wounded and poisoned with the discharge issuing from a dead body whilst placing the corpse in the coffin. A severe attack of erysipelas followed. Subsequently his wife had a similar attack of erysipelas. Their daughter living with them, and in the seventh month of pregnancy, was then taken with an attack of fever. In a day or two, she gave birth to a dead child, whose body had all the appearance of being affected with erysipelas, as the arms of the mother's parents previously were. The mother herself died within twenty-four hours, with the symptoms of malignant puerperal fever. On his road home, from visiting this patient, Dr. Hill was called to a case of labour, and this other was also attacked with puerperal fever. Dr. Arneth's very valuable paper adduced what was apparently incontrovertible evidence of puerperal fever being propagated in the way he suggested—viz. by medical men carrying on their fingers matter capable of producing it from bodies which they were dissecting, and inadvertently inoculating that matter into the mucous membrane of the vagina of patients in labour. In these cases, the fingers of the accoucheur acted like the ivory points or ivory lancets of the old inoculators and vaccinators—that is, when once dipped in the poison, they might retain it till they had again inoculated that poison into the bodies of other healthy subjects. The vaginal mucous membrane was generally stretched and abraded in labour, the perineum was often slightly torn, and the whole afforded a surface in a condition easily inoculable. But if students and practitioners, with their hands containing some portions of morbid matter act thus, by inoculating that matter on the abraded surface of the vagina, produce puerperal fever, no doubt, under similar circumstances, surgeons could and did inoculate into the wounds which they made or dressed, similar matter producing the similar disease of surgical fever in their patients. If it could be inoculated into the abraded surface of the vagina, it could be inoculated into a recent wound. If it produced fever in the one set of patients, it would produce fever in the other. And, since bringing under the attention of the profession the communicability of surgical fever, Dr. Simpson stated that he had heard various facts in regard to it, all of which more and more convinced him that surgeons, like accoucheurs, were occasionally the unhappy media of inoculating their patients with morbid matter, producing in them surgical fever, as in puerperal patients, obstetricians, by the same means, produced in their patients puerperal fever. He had no doubt that it would take many long years fully to convince surgeons of this fact; but still it was his conviction that surgeons would ultimately both believe and act upon it, and that their doing so would be a means of preventing many of the numerous deaths which now occur after operations, particularly in hospital

surgical practice. The mortality in most lying-in hospitals upon the Continent of Europe was very much higher than the mortality in the same institutions in Great Britain and Ireland. He did not think that the diminished mortality amongst us was in any way owing to the fact of superiority on our part in obstetric practice, but it was owing to the fact of British accoucheurs generally having a belief in the contagious communicability of puerperal fever, and taking their measures accordingly. He was sincerely of opinion that the want of that belief was a great cause of mortality in the continental lying-in hospitals generally, and that in them many lives were yearly sacrificed to medical prejudice, in the want of a proper belief, on the part of the medical men in charge of them, in the contagious communicability of puerperal fever; and in such a fatal disease it was ever to be recollected that prevention was a far mightier object than cure. Already, by Dr. Semmelweiss' belief in the contagious propagation of puerperal fever, and by the hygienic means which that belief suggested, several hundred maternal lives have, within four years, been saved in the Lying-in Hospital of Vienna. If one hospital could afford such results in four years, how many maternal lives might be saved over the Continent of Europe, provided all the practitioners of Germany, France, Denmark, &c., could be as thoroughly impressed with the contagious character of puerperal fever as British practitioners and hospital accoucheurs now generally were! Continental accoucheurs generally did not understand exactly the kind or description of evidence upon which British practitioners founded their belief in the contagious communicability of puerperal fever. Some of the continental writers on this subject seem to imagine that British obstetricians believed that puerperal fever was usually propagated directly from one patient to another, and, not seeing this occur, when a puerperal fever patient, in their continental hospitals, lay by the side of another healthy woman, they imagine that from this fact they had a disproof of the opinion of the contagious communicability of the disease. But in this country we do not believe that the disease is usually propagated in this way, directly from individual to individual, but indirectly, through the medium of a third person, and that person generally the medical attendant or nurse. But that it was so propagated by the medical attendant or nurse, we further believe upon the following species of evidence—viz., that it was, as in Dr. Moir's late cases, and in most other instances, distinctly and precisely limited to the practice of one or two practitioners only, out of a large number of medical practitioners, practicing in a large community. Many examples were recorded, and many more unrecorded were known to the profession, of the disease being thus limited to the practice of a single practitioner in a town or city; all, or almost all, the patients of that practitioner being affected with it, where none of the patients of other practitioners were seized with any attack of the disease. In these cases we could not believe it to be owing to any morbific influence present in the air, or emanating from the locality in these cities or towns. For, if so, it would affect indiscriminately the patients of all practitioners. But it had been often seen, as it was just now remarked, to haunt the steps of a single practitioner, and a single practitioner only, in a community. Many instances of this were known and published. One would suffice for illustration. Dr. Roberton, of Manchester, tells us that, in 1840, upwards of 400 women were delivered by different midwives in connection with the Lying-in Hospital in Manchester. These 400 women were delivered in different parts of the town at their own houses: 16 of them died of puerperal fever; all the others made good recoveries. Their production could not have arisen from any general epidemic, or atmospheric, or telluric influence; for the fatal cases occurred in no one particular district, but were scattered through different parts of the town. Now these 400 and odd women were attended in their confinements by twelve different midwives. Eleven of these twelve midwives had no puerperal fever amongst their patients. The sixteen fatal cases had occurred in the practice of one only of the twelve. The disease in fact was limited entirely to her patients. There must have been something, then, connected with that one midwife, in which she differed from the other midwives, inasmuch as all her patients took the disease, whilst the patients of all the other midwives escaped from it. And in medical philosophy we cannot fancy that this something consisted of

aught else than some form of that morbific principle or virus to which pathologists give the name of contagion. Further, that the disease is really in such instances propagated by this third person (the physician or the nurse) carrying to the parturient patients a virus capable of producing the disease, is shown by this kind of additional evidence: That, when the disease has broken out in the practice of one accoucheur, it will spread to the practice of others of his obstetrical brethren, provided they put themselves in a condition so as to carry off the contagious virus from the patients of the first practitioner. In 1836 or 1837, Mr. Sidey of this city had a rapid succession of five or six fatal cases of puerperal fever in his practice—at the time when the disease was not known to exist in the practice of any other practitioners in this locality. Dr. Simpson, who had then no full and proper belief in the contagious propagation of puerperal fever, attended the dissection of two of Dr. Sidey's patients, and freely handled the diseased parts. The next four cases of midwifery which Dr. Simpson attended were all affected with puerperal fever, and it was the first time that he had seen it in practice. It was upon evidence of this kind that British pathologists generally reckoned in founding their belief on the contagious communicability of puerperal fever. And it was evidence of this kind which had intuitively driven them to adopt those means of prevention or avoidance, which are so highly necessary, in order to arrest the propagation of this fearful malady. The measures proposed and so successfully adopted by Dr. Semmelweiss in the Vienna Hospital were beautiful from their mere simplicity, but they were full also of a great lesson to us all. They proved, in a manner beyond all dispute, the great importance of carefully ridding the fingers from all matters in the least degree likely to prove hurtful, if inoculated into the vagina of a puerperal patient. And no doubt, as Dr. Arneth had remarked, such matters were always present in the fingers as long as, despite even of common ablutions, they emitted a disagreeable animal odour, the presence of that odour being a perfect proof of the presence of morbid matter capable of producing the odour. Dr. Semmelweiss and Arneth recommended, for the purpose of ridding the fingers of this morbific matter, the use of chloride of lime. Dr. Simpson had used for the same object for years daily (or rather generally often during the day) a solution of cyanide of potass, which was more effective even than chloride of lime, and had this other advantage, that it removed readily and at once all such stains as the fingers of the accoucheur were apt to receive in treating uterine diseases—with nitrate of silver, iodine, and the like. Dr. Semmelweiss believed that animal matter, in a state of *putrefaction*, was the material which constituted the inoculable virus capable of being transmitted to puerperal patients, and of producing puerperal fever in these patients. Dr. Simpson had strong doubts as to the idea of this matter being necessarily putrid being correct. We see cases in which animal substances are allowed to putrefy within the vagina, and to be applied to the mucous membrane of that canal, without producing puerperal fever. When a polypus, for example, was ligatured, and left in the vagina, it often was killed and putrefied there for days before the stalk was completely cut through by the applied ligature. And yet in these cases the patient had little or no liability to attacks of disease like puerperal fever. Besides, in these cases, the other condition is present, of an abraded surface, as well as putrid matter in contact with that surface, for the vagina was sometimes no doubt more or less injured in its mucous surface while passing the ligature; and the ligature itself always made a raw, open, and inoculable surface, as it cut through the pedicle of the tumour. Surgery on other parts of the body admitted of many similar proofs against this doctrine. Dr. Simpson had always believed and taught another theory, but not perhaps a perfectly correct one, in regard to the nature of the contagious material. He believed that generally, if not always, the material which, when carried from one subject to another, could produce puerperal or surgical fever in a newly inoculable subject, was an *inflammatory secretion*, just as the inoculable matter of small-pox, cow-pox, syphilis, &c., was an inflammatory secretion. The case adduced by Dr. Arneth, of puerperal fever breaking out in the hospital apparently in consequence of matter being conveyed from cancer of the uterus to a series of puerperal patients, was not so strong an argument against the view as

might at first sight appear. For the cancer patient was, according to Dr. Arneth's own account, several days in labour, the carcinomatous degeneration of the cervix preventing the opening of the os. And there can be very little doubt that, by the end of several days, the carcinomatous structures were in a state of inflammation, and probably gangrenous decomposition, from the protraction of parturition. At all events, if the carcinomatous cervix was really putrid, it was in all likelihood putrid from the result of gangrenous inflammation in its compressed and irritated structures. But, be this the case or not, it was important to remark that obstetricians had now very decided proof of various kinds of morbid matters which were capable, when inoculated into the vagina, of leading on to puerperal fever. For, first of all, when the bodies of patients who died of puerperal fever were opened, the inflammatory effusions in the abdomen and elsewhere, when brought in contact with the fingers of the accoucheur, were capable of producing the same disease in other healthy patients, upon whom they were accidentally inoculated. In other words, the morbid effusions of puerperal fever in one woman were capable of producing puerperal fever in another woman, when inoculated into her system. But, secondly, the same seems to hold true with regard to the secretions coming from the bodies of such patients, even when they did not die and were not dissected. Dr. Simpson alluded to the cases, for example, of nurses and midwives, whose fingers came into contact with the discharges from the vagina of puerperal patients, giving the disease to other parturient women, and who had not of course, in the way of post-mortem examinations, been bringing their fingers in contact with the more internal secretions. Dr. Gordon mentions more than one case of this kind in relation to midwives, in his history of the Aberdeen puerperal epidemic. Thirdly, he believed that the cases recorded by the late Mr. Storrs, Hutchinson, Ingleby, and others, sufficiently proved that the inflammatory secretions in some other inflammatory diseases besides puerperal fever, when carried by the medical attendant, and inoculated into the maternal canals of a parturient female, were sometimes capable of producing in such females true puerperal fever. This seemed more particularly true with regard to the inflammatory effusions in erysipelas and gangrenous inflammation of the limbs, scrotum, vulva, or other part of the body. That the morbid matters thrown out in those more subacute forms of disseminated or phlebitic inflammation, which sometimes occur after delivery, were capable of producing puerperal fever when inoculated into puerperal patients, was a fact of some importance to hold in view. And the following recent case will perhaps impress the truth of it. A short time ago, Dr. Simpson was requested to see a case of pelvic abscess in a patient delivered for four or five weeks previously. The abscess was artificially evacuated, but only with partial relief; as there were evidently other local inflammations going on, both in the abdomen and chest. The patient died about six or seven days after delivery. The practitioner who originally attended her, and who had no puerperal fever cases in his practice, was not able to be present at the dissection. Another able medical practitioner—whom he had called to the case after the inflammatory attack had begun—opened the body. Though an excellent and well-informed physician, he rather decried any fear about the possibility of contagion, when Dr. Simpson suggested it to him as he came into the room, and found him opening the body. This gentleman had no puerperal fever cases in his own practice; but within fifty hours after opening this body, he happened to be called to five cases of midwifery. Four of these patients were attacked with puerperal fever, three in a very severe, and one in a mild or abortive form. The fifth patient altogether escaped, the child having been born before the practitioner's arrival. Fourthly, there were one or two recorded circumstances which would lead one to the belief that some varieties of febrile exhalations, received by inhalation into the blood of a newly-delivered woman, are capable of producing in her a disease analogous to, if not identical with, puerperal fever, the effect being the same as if morbid matter had been introduced into her blood, not by inhalation into her lungs, but by inoculation and imbibition into the vagina, just as in the spreading of small-pox we see the disease liable to be produced in two ways—first, by the direct inoculation of the morbid inflammatory matter contained in

pustules on the arm of a healthy individual; or secondly, by individuals inhaling the morbid effluvia from the bodies of patients labouring under the disease, without being inoculated into them. Dr. Collins mentions an instance in which a patient was admitted into the Dublin Lying-in Hospital, labouring under a bad form of typhus fever. Two puerperal females, who occupied the adjoining beds, were attacked with puerperal fever, and died. In another instance, in the same hospital, a similar accident happened. A patient labouring under typhus fever was admitted into one of the small wards of the house, which contained only some four beds—all the three other women were attacked with puerperal fever, and two of them died. But we had no very decided evidence, as far as Dr. Simpson knew, from hospital observation, that a woman labouring under puerperal fever could, by the exhalations from her body, infect with the same disease other patients lying near her in the same ward. Fifthly, some accoucheurs believe in the possibility of the imbibition of the effluvia from typhus or puerperal fever patients by the clothes of the medical attendant, and that the subsequent inhalation of such matter by the parturient female might be a means of artificially infecting that female with the disease. Dr. Simpson could not doubt that the saturation of the bed-clothes, &c. with the discharges of a puerperal fever patient might give the same disease to another puerperal patient who was laid in them. This, and one or two other circumstances, were enough to show that, for safety's sake, it was always well to act upon the possibility of the clothes even of the medical attendant being thus a medium of contagion. In some observations on the subject of the contagion of puerperal fever, Dr. Merriman states, that he once attended the dissection of a puerperal patient, but did not touch the body or any of the parts. The same evening he attended a lady in labour, and she was attacked with the disease. In his account of the Aberdeen fever, Dr. Gordon mentions that a man-servant appeared to carry the infection of the disease from his sister in Aberdeen to his wife in the parish of Fintry, six miles from Aberdeen. The midwife who attended this woman infected two other parturient patients in the same parish soon afterwards, both of whom died. If a statement of this kind could be established as a fact, by careful analysis of the requisite evidence, it would be a matter of importance, as adding to our knowledge of the modes in which this disease may be propagated. In the instance which Dr. Moir had mentioned, of Dr. Hamilton visiting the patient of another practitioner affected with puerperal fever, and immediately after having several cases in his own practice, it was not at all unlikely that he had made some examination of the patient, or, at all events, without proof that he had not, it would not be proper to conclude that the disease in that instance could be carried by the clothes of the physician acting in the way of *fomites*. The history of the other case adduced by Dr. Moir, of the fever breaking out on ship-board, when bed-clothes had been used which had been employed previously in the beds of women who had died of puerperal fever, would be exceedingly important in the way of proof, if it had been more substantially reported and authenticated. One can scarcely believe that such clothes should be shipped off after being thus used, without having been previously thoroughly washed and cleansed. Dr. Simpson had also been informed of an instance, by Professor Patterson, in which a medical gentleman, after having lost several cases of puerperal fever, got rid of the disease in his practice by changing his clothes, and using chloride of lime, &c., but it again returned to him when he happened to deliver a patient, immediately after wearing a pair of gloves which he had used during the time of the puerperal epidemic; and certainly, if there was any piece of dress more apt to retain the contagion than another, it was this useless and superfluous appendage to our attire; for it might retain the morbid secretions that were originally on the fingers of the accoucheur, just as our vaccinating glasses would retain the cow-pox matter. Again, in a small ward or small hospital, one could almost, as it were, produce puerperal fever at will, by crowding a great number of puerperal patients together in the same ill-ventilated room. The discharges from the different patients in a few days render the air of such a room so loaded and morbific as to be oppressive to all entering it, and capable of producing febrile action by the inspiration of it, in those puerperal patients who occupied its

beds. This no doubt was true when this experiment was driven, as it sometimes accidentally had been, to an extreme. But it was true also in its lesser degree; for Dr. Simpson believed that one great cause of weed, ephemera, and febrile attacks during puerperal convalescence, was the still too slight attention that was paid to the ventilation of the lying-in chamber. He had repeatedly, he thought, seen more or less slight febrile action set up in a patient, from her curtains being closely drawn around her bed for eight or ten hours during the night, being thus obliged to breathe an air loaded and affected with the morbid animal discharges from her own body. Dr. Arneth had not alluded to the question, Whether the disease was ever caused or not, or a predisposition at least given to it, by epidemic influence? Dr. Simpson believed that we ought not to forget altogether the possibility of epidemic influences acting directly or indirectly in the causation of it. During the present century, the disease had nearly, in two or three instances, as in 1819–20 and 1829, prevailed in most of the cities and lying-in hospitals of Europe. And it was difficult or impossible to account for this simultaneous existence everywhere, without believing that everywhere there was some general epidemic cause tending to its production. In this the history of puerperal fever did not differ from the history of other contagious febrile diseases. During the latter part of the last century, for instance, small-pox contagion existed in almost every town and village in England, because in almost every one of them there were artificial causes operating to produce and perpetuate the disease, inoculation being very generally practiced. But it was only in particular years, and sometimes at a considerable distance of time, that the disease became epidemic. And when it did so, it was owing to other causes being in action in addition to the mere inoculation. Nay more, in some conditions, as during the blowing of the Harmattan wind, we know that small-pox and cow-pox cannot be propagated even by direct inoculation—facts showing us the influence of epidemic constitutions in effecting a greater or less tendency to the production and spread of particular diseases. One predisposing cause to attacks of puerperal fever was, no doubt, the state of the constitution of the patient immediately after delivery. Dr. Collins' cases in the Dublin Hospital showed, not only that the disease was far more apt to attack those who were worn out by long labours than those women who had escaped with parturitions short in their duration, but also that the malady, when it did appear, was much more fatal in the former than in the latter class of patients. The Society was aware that it had been proposed by various pathologists of late years to give various prophylactic medicines to puerperal patients after delivery, and to surgical patients after operations, in order to prevent the attacks of puerperal or surgical fever. All these measures, such as sulphate of quinine, muriate of iron, &c., had the object in view of strengthening the constitution of those to whom they were exhibited, so as to diminish or destroy the predisposition to these feverish attacks. And we could understand their proposed mode of action when we reflected upon the fact that a predisposition to such attacks was given by any unusual degree of exhaustion or debility in the patient. Every patient exposed to the contagion, and even to the inoculation, of small-pox, for example, did not take small-pox. There were other means by which the predisposition to that disease was reduced or removed, than by previous variolation or previous vaccination. And perhaps, particularly, or otherwise, by medicine, we may be able to reduce or remove the predisposition to puerperal fever, as well as to scarlatina, measles, &c. Lastly, Dr. Simpson observed, no doubt, sporadic cases of puerperal fever did, and were from time to time occurring, traceable to no contagion or any other cause capable of being averted; but owing, as in Dr. Moir's first case, to morbid actions going on in the constitution of the patient even before delivery; or to morbific agencies capable, under other circumstances, of producing fever or inflammation acting upon the patient in delivery. Dr. Arneth had particularly called the attention of the Society to the connection which was generally believed by British accoucheurs to exist between erysipelas and puerperal fever; and he had stated that the relation between these two diseases had not been observed in Vienna. Dr. Simpson, however, expressed his opinion, that now that Dr. Arneth's attention had been directed to it, he and his compatriots would find such

relations existing between these two diseases, which English accoucheurs spoke of. We, all of us, often overlook such facts in pathology till our attention happens to be prominently called to them. Dr. Simpson had long believed and taught that there was a pathological connection between the two diseases in question, as to their pathological nature, their pathological anatomy, their symptomatology, and their causation. The two diseases had in Britain been repeatedly observed to prevail at the same time, in the same town, in the same hospital, or even in the same wards. There were various accurately recorded instances in our British journals, which he had already alluded to as showing this—that when the fingers of medical men were impregnated with the morbid secretions thrown out in erysipelatous inflammation, the inoculation of these matters into the genital canals of our parturient females produced puerperal fever in them in the same way as the inoculation of the secretions from patients who had died of puerperal fever itself. The effused morbid matters in the one disease, as in the other, were capable of producing the same effect when introduced into the vagina of a puerperal patient. In an instance recorded by Mr. Hutchinson, two surgeons, living at ten miles distance from each other, met half way to make incisions into a limb affected with erysipelas and sloughing. Both practitioners touched and handled the inflamed and sloughing parts; and the first parturient patients that both practitioners attended within thirty or forty hours afterwards, in their own distant but respective localities, were attacked with, and died of, puerperal fever. The late Mr. Ingleby mentions an instance of a practitioner making incisions into structures affected with erysipelas, and going directly from this patient to a patient in labour. This patient took puerperal fever and died. And within the course of the next ten days, seven cases of puerperal fever occurred in the practice of the same practitioner, almost all of them proving fatal. And various other cases, similar to the preceding, were well known to the profession. Again, however, the reverse of this was equally true. Not only was the morbid matter in erysipelas apparently sometimes capable of producing puerperal fever, but the secretions and exhalations from puerperal fever patients seemed, on the other hand, sometimes capable of producing erysipelas. In the series of puerperal cases met with by Mr. Sidey in this city about 1837, and which had already been alluded to, the morbific matter carried from two or three patients seemed, as has been previously stated, to produce the disease, both in Dr. Simpson's own practice, and also in the practice of Dr. Patterson. The morbid effusions of these patients created the same disease of puerperal fever in other patients to whom that matter was carried. But the morbid secretions and exhalations from these same patients appeared to do more—viz. they produced also erysipelas in several of the nurses, relations, and attendants upon the patients. Four or five cases of erysipelas followed upon a single one of these puerperal cases in Mr. Sidey's practice, and that during the week subsequent to the puerperal patient's death. The patient's mother-in-law, who was in constant attendance upon her, was attacked with fever and erysipelas in the face and head. One of the patient's sons, a boy five years of age, was attacked with erysipelas of the face; a daughter was seized with fever and sore throat, with dusky redness, which continued for some time; and the patient's sister-in-law was attacked with acute gastric symptoms, and great abdominal irritation, under which she sunk in a few days. Here we have apparently the same focus of contagion producing puerperal fever in puerperal patients, and erysipelas, inflammatory sore throat, &c., in patients who were not in a puerperal state. Dr. Hill, of Leuchars, had published in the *Monthly Journal* of last year two very important series of cases, showing, in a similar way, the connection between producing puerperal fever and erysipelas, in the identity of the poison that was capable of producing these two diseases. We have already seen that the inoculation of the morbid matters from erysipelatous structures into parturient patients will occasionally produce puerperal fever. But furthermore, the converse of this is so far also true, viz., that the inoculation of morbid matters or secretions from puerperal fever patients into other healthy individuals, will occasionally produce in the latter attacks of erysipelas. A considerable number of instances have been published by Dr. Duncan, Mr. Travers, and others, in which medical men have died from

punctures received in dissection, or rather from erysipelatous inflammation of the arm and side following such punctures. The history of a large proportion of these cases shows, further, that the matter thus inoculated, and which produced the fatal erysipelas and fever, was a puerperal fever secretion; as in most instances the disease resulted to these medical men from opening the bodies of patients who had died of puerperal fever. Whilst thus arguing for some pathological connection between erysipelas and puerperal fever, Dr. Simpson further stated that, though, in a few cases, patients labouring under puerperal fever had been attacked with erysipelas of the skin and cellular tissues—and, on the other hand, patients who were delivered when suffering under erysipelas, were sometimes subsequently attacked with puerperal fever—yet these results were not always observed. He alluded to cases where erysipelas had attacked women before delivery, but was not followed by puerperal fever. And he had seen more than one patient labouring under puerperal fever have inflammation of the skin, but that of a pustular type, like ecthyma, and not of an erysipelatous character. In stating this, he wished to express his belief that the diseases were not in all respects pathologically identical, though the morbid secretions in the one were capable of producing, in those predisposed to it, the other disease—erysipelatous effusions producing puerperal fever, and puerperal fever secretions producing erysipelas. Other febrile and inflammatory products, besides those of puerperal fever, when inhaled through the lungs into the blood, or inoculated into the blood through the vagina, may, as already stated, probably produce puerperal fever in addition to those we have principally spoken of, viz., the secretions from puerperal fever and erysipelatous patients. And he thought the whole subject one of extreme importance to have more thoroughly investigated; because, in a case like puerperal fever, it was the means of prevention that we were to look to, and to expect success in, more than the means of cure. It was here, as elsewhere, evident that human life would probably be saved to a far greater extent by studying the means of preventing the causation of disease, than by any study of the means of treatment, after disease was once actually commenced. And when it was remembered that about 3000 women still died in child-birth in England and Wales alone every year, and that a large proportion of these 3000 maternal deaths were deaths from puerperal fever, he thought he need not make any further observations on the importance of studying the means of prevention in such a fatal and formidable disease, nor offer any apology for the length of the imperfect remarks which he had ventured to offer on this important subject.—*Ibid.*

—

43. *Contagiousness of Puerperal Fever.*—Dr. Peddie said, that he had given a good deal of attention to the subject of puerperal fever, from the occurrence of some cases in his practice, upwards of five years ago; and he quite agreed with Dr. Arneth in his excellent remarks on the danger of obstetrical manipulation, after being recently engaged in post-mortem examinations. That, he thought, was now a pretty generally admitted opinion in this country. Dr. Robert Lee of London, Dr. Merriman, and others, had, many years since, mentioned cases in proof of this source of danger; and, of late, accoucheurs in this city had exercised much caution. To point out still more strongly the risk of accoucheurs handling morbid preparations, he would notice what he believed to be a fact, that the series of puerperal fever cases which Dr. Simpson had mentioned as occurring in his practice some years since, from assisting at an autopsy of one of Dr. Sidey's puerperal cases, did not end there, but that a practitioner in Leith, having examined, in Dr. Simpson's home, a portion of the uterus obtained on that occasion, had immediately thereafter three fatal cases of the fever in his own practice. With regard to the power of the solution of the chloride of lime as a disinfecting wash for the hands of those engaged in midwifery practice, Dr. Peddie had no doubt; and in that belief he had personally used it much. He said that it might be in the recollection of many of the members of the Society, that the cases of puerperal fever which had occurred to himself, and regarding which he had then read a communication, took place in two series. The first series of these cases occurred in such a way as to take him by surprise, and before the necessity for precaution was suggested. Now, however, he changed

his clothes, and washed often with the solution of the chloride of lime; and afterwards, at intervals of a few days, delivered three patients who made most excellent recoveries. The first patient, however, of the second series was a personal friend of the last patient of the first series, resided close by, was with her during her confinement, continued visiting for some days after the fever had shown itself, in spite of urgent remonstrances, and even assisted in the sick-room arrangements, changing articles of clothing, removing evacuations, &c. Thus, in Dr. Peddie's opinion, she obtained the fatal virus direct from her friend, and anew communicated it to him, who, in turn, unwittingly was the medium of propagation to another patient within the next twenty-four hours. Since then, Dr. Peddie had been much on his guard when engaged in surgical dressings, when attending bad cases of fever, erysipelas, or post-mortem examinations, considering it his duty to wash well thereafter with the solution of the chloride of lime. Whether in consequence of these precautions or no, he had not since met with any such cases in his practice. As to the question of the possibility of puerperal fever being propagated through the medium of clothing, Dr. Peddie mentioned a case, recorded in the "Provincial Journal" (No. 166), as occurring to Dr. Allen of York. The doctor, after seeing the last of a long list of fatal cases, was surprised to find a new instance of the disease, two months afterwards, in the practice of his assistant. It was ascertained, on investigation, that that gentleman had put on the pea-jacket which Dr. A. had last worn when in attendance on a case of the fever. Dr. Peddie was not prepared to assert the correctness of this explanation; but thought that it was better that accoucheurs should not dismiss from their minds the possibility of this fearful malady being communicated by articles of dress.—*Ibid.*

—

44. *Causes and Treatment of Secondary Hemorrhage after Parturition.*—A valuable paper on this subject is published, in the *Dublin Quarterly Journal of Medical Science* for May, 1851, by Dr. M'Clintock. It specially relates to those cases in which any profuse sanguineous discharge from the vagina takes place, commencing six hours after a patient has been delivered, and within a month from this epoch.

Causes.—I. *The presence of a portion of placenta in the uterus* is one of the most frequent causes. This is observed to be most generally the result of artificial removal of the after-birth, especially if the operator be incautious or timid, but it may happen in the most skillful hands, when the cause of detention has been morbid adhesion of a very intimate nature. This seldom produces any untoward symptoms until the third or fourth day; but then, if it be not cast off, many may be developed. The author specially speaks of the probability of uterine or crural phlebitis, and of secondary hemorrhage, supervening. This latter seldom comes on until the fourth or fifth day, and it may not do so until the second week, or later; in fact, so long as a fragment of placenta remains in the uterine cavity, the patient can have no security against a reccurrence of the sanguineous discharge, and the period at which it may come away is extremely variable; sometimes not until the third week, or later.

II. *The retention of a coagulum, of any size, in the uterus beyond the first few hours after delivery.* In this case, the immediate or exciting cause of the effusion is probably some accidental displacement of the clot, or excitement of the arterial system. The symptoms very much resemble those produced by the retention of part of the placenta; but there is less of the fetid smell, and no shreds or portions of the placenta are expelled, whilst the coagulum, if entire, has exactly the shape of the uterine cavity.

III. *Relaxation of the uterine fibres.*—This is admitted to be a point, in regard to which it is difficult to obtain direct evidence; but several cases are referred to which favour such a view; and it is observed that, from the numerous and strongly marked sympathies of the uterus, it is reasonable to conclude, that for some days, at all events, after parturition, there may be an interruption of its contractile function, through the influence of deep mental impressions, or certain bodily derangements.

IV. *Local or general disturbance of the vascular system*, whether induced by premature exertion, the incautious use of stimulants, agitation of mind, local

determination of blood, or whatever tends to increase the force of the vital current. A knowledge of this cause points out an additional reason for enjoining strict rest, and the horizontal position, when the womb remains unusually large at a late period after delivery.

V. *Great fecal accumulation* in the lower part of the great intestine is mentioned on the authority of Moreau, who mentions cases in which the hemorrhage ceased upon his mechanically removing the excrementitious matter.

VI. *Functional disorder of the liver.*—Dr. Ayre has known this form of uterine hemorrhage to have been produced by functional disorder of the liver, and to have been suppressed by the administration of calomel. At first he ascribed the effect of the medicine, in relieving the hemorrhage, to the evacuation of morbid matters from the bowels; but further, and more accurate observations of the colour and condition of the stools, of the course of the disorder and effects of the remedy, convinced him that such was not the case; and that the effect arises from an alteration of the morbid actions of the liver, and other organs of digestion. The cause is said to be in this case a sudden interruption of the secreting function of the liver, which gives rise to an abdominal venous congestion, in which the uterus may participate; and the indication of cure for the hemorrhage is to restore the biliary secretion. Calomel, he observes, is the medicine which must be mainly relied on; and it must be given in small, but frequently renewed doses, following them up by aperients, or combining them with minute doses of opium, when a diarrhœa is present, and continuing them until some impression is made upon the complaint, even at the risk of slightly affecting the mouth.

VII. *Inflammatory ulceration of the cervix uteri.*—According to Dr. Henry Bennett. The author thinks that the frequency of this, as a cause, has been somewhat exaggerated; for, first, Dr. Bennett observes, that inflammatory ulceration of the cervix is of frequent occurrence during pregnancy, which cannot be said of lochial menorrhagia; and, in the second place, the author remarks, that he has strong reason to believe that many patients, affected with chronic inflammation and ulceration of the os uteri, had been delivered under his care, who nevertheless had no subsequent attack of hemorrhage, or extraordinary amount of lochial discharge. It is suggested, however, that it occasionally happens, especially in first labours, that the os uteri is slightly fissured by the passage of the child, and that this might put on an ulcerous character, and thus give rise to hemorrhage during the puerperal state.

VIII. *Presence of a polypus attached to the uterus*, which may for the first time give evidence of its existence soon after delivery. Various authorities and cases are referred to on this point.

IX. *Inversion of the uterus*, it is said, has been long recognized as a cause of hemorrhage post partum. "I feel strong reasons," says Mr. Crosse, "for believing, as has been repeatedly stated by authors of high reputation and great experience, that partial inversion exists more often than is generally suspected, and is the cause of hemorrhage after the delivery of the afterbirth. The loss so produced ordinarily takes place immediately upon its removal; but it may be repeated, at uncertain intervals, subsequently, if the malposition be not rectified." The hemorrhage may continue for hours, or first show itself after several hours, or even after a day or two.

Besides the causes which are considered to be the ordinary causes of hemorrhage after parturition, the author refers to several cases in which it had occurred from causes of an unusual character; and in most of which its precise origin was only discovered on a post-mortem examination. These are highly interesting, and cannot be read without considerable advantage.

Treatment.—The general principles of treatment, in all these cases, are to tranquillize the circulation, both local and general; to promote the condensation of the uterine structure, and to use such constitutional and local remedies as may tend to favour coagulation at the mouths of the vessels.

The first and second indications are to be fulfilled, by enjoining perfect rest in the horizontal position, and withholding stimuli of every kind. The patient must lie on a hard bed, in which her hips cannot sink, and firm pressure, with occasional friction, should be made over the uterus, so as to promote its con-

traction, and expel any coagulum that might have formed within it. At the same time, the ergot of rye should be administered with as little delay as possible, since, in these cases, our chief reliance for the suppression of the discharge is on this remedy. Fifteen or twenty grains of the fresh powder may be given in the first instance, and repeated, if necessary, in forty minutes or an hour. When the discharge is not very profuse, five or six grain doses may be given every three or four hours; but in every case, the first dose should be a full one. If the patient be alarmingly reduced by hemorrhage, caution is necessary respecting it; as it is observed that the ergot exercises a decidedly sedative influence upon the system. Cold applications should not be applied on slight grounds for the first day or two after labour, for fear of inducing uterine inflammation; but otherwise there is no objection to them. A cold enema, with a spoonful of common marine salt, is recommended; as is also a moderate dose of the sedative solution of opium.

Should these means fail, recourse must be had to the tampon or plug. We must not forget the possibility of internal hemorrhage occurring during its use; which is to be guarded against by securing a pad over the uterus with a well applied binder, and occasionally examining the hypogastrium. The author adds, that a silk pocket handkerchief forms about the best material for a plug that can be used.

When the hemorrhage manifests a disposition to recur, recourse must be had to constitutional means for its suppression; and the state of the liver and bowels must be looked to. Acetate of lead receives a very qualified recommendation. Sulphate of zinc, in doses of one or two grains, with a quarter or half a grain of opium, may be tried, as also the dilute sulphuric and gallic acid; the latter, in one case, acted very promptly and effectually in suppressing the bleeding. The tincture of Indian hemp, and oxide of silver, are also spoken of in favourable terms.

If the hemorrhage is of an atonic or passive character, tonic and chalybeate medicines are recommended; and a very admirable combination of them, it is said, is the sulphate of iron, sulphate of quina, dilute sulphuric acid, and water; to which, if required, a little Epsom salts may be added. A strong infusion of bark and elixir of vitriol, with a small quantity of tincture of cinnamon, was recommended by Dr. Leake. In extreme cases of uterine hemorrhage, full doses of oil of turpentine, sometimes as much as an ounce, with half that quantity of almond oil, for a dose, was found of much benefit by Mr. Griffith of Wrexham.

When there is ground for suspecting that the hemorrhage results from the retention of a portion of placenta, or clot, a vaginal examination should at once be made, as speedy removal of the foreign body is desirable; but great caution is necessary in removing a portion of placenta when it is adherent, or when this proceeding would be attended with much difficulty.

When ulcerative disease of the cervix is the probable cause of hemorrhage, the treatment does not essentially differ from that of ordinary cases of inflammatory ulceration of the cervix uteri. Common prudence will suggest the advisability of postponing topical applications to the os uteri, until the system has recovered from the effects of parturition. If a fortnight, or three weeks, can be allowed to pass over, so much the better; then we may begin to touch the surface of the ulcer with the nitrate of silver, or some other caustic. A mild injection may be thrown into the vagina. Early and active counter-irritation should also be made over the sacrum. Constitutional treatment must in every case be employed, and the system restored as speedily as possible to its most normal state.

In hemorrhage depending upon a polypus, much circumspection is necessary in deciding upon its removal, as many unpleasant consequences have attended the operation under these circumstances, on account of the increased size and vascularity of the uterus, and the tendency still existing to inflammation and phlebitis. Hence, it is recommended to forego all attempts to extirpate the tumour as long as possible, or until the woman has recovered from the effects of parturition. These cases, however, require very different treatment according to their different circumstances. Many cases are referred to in illustration.—*Lond. Journ. Med.*, June, 1851.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

45. *Poisoning with Oxalic Acid.*—Communicated by Dr. DIDAMA to T. R. Beck, M. D. Prof. T. R. BECK—Dear Sir:—The following case of poisoning which occurred in Syracuse on the 16th inst., may not be uninteresting to you. An Irish woman, aged thirty, of full habit and good constitution, feeling slightly ill in the morning, went without her breakfast, and about dinner time dissolved two large tablespoonfuls of what she supposed to be Epsom salts, in a small quantity of water. She did not notice that the taste of the mixture was unusual till she had swallowed at least two-thirds of it, when she immediately alarmed her companion, by exclaiming, "It's not salts at all that I've taken, and I'm kilt intirely." Dr. H. Hoyt, of Syracuse, was sent for in haste, and he found on his arrival—some twenty minutes after the accident—that the patient had vomited twice; at first only the solution she had taken, and subsequently a dark-coloured, bloody-looking fluid, in which were numerous white membranous patches. The Dr. promptly gave an emetic of ipecac., which produced copious vomiting of grumous matter, similar to that previously discharged. Although pretty well satisfied of the nature of the poison, he hastened with a sample to the office of Mr. Fuller, a practical chemist, and found, on applying the proper tests, that the supposed salts were oxalic acid. Returning to the patient immediately, he gave her about half an ounce of prepared chalk, and sent for me to come with my stomach-pump.

I arrived about an hour and a half after the poison had been taken, and found the woman quiet, and nearly free from the intense burning pain in her throat and stomach which she had felt previous to my arrival; with an anxious countenance; pulse 92, and feeble; tongue and fauces very red.

After two efforts, unsuccessful on account of the irritability of the œsophagus, I introduced the stomach tube, but the constant retching and extreme distress occasioned by its presence, obliged me to withdraw it, and to cease further attempts for its introduction. A dark, bloody, ropy matter, containing a great many white flakes and shreds, was immediately vomited.

Small quantities of flaxseed tea were ordered to be given occasionally, with a dose of olive oil in the evening. During the night she experienced slight pain in her stomach, with much thirst, and in the morning discharged from her bowels a large amount of matter resembling what she had vomited.

I visited her again yesterday, and found her at work in the kitchen. She has taken no nourishment, except rice water, since the accident, and feels rather weak, but is comfortable in other respects. Is it not strange that so large a quantity of the acid, *taken fasting*, should not have produced more violent symptoms, and even death? Of course she owes her recovery to her speedy vomiting, and to the administration of the emetic, although the chalk may have neutralized some remaining portion of the acid.

SALINA, N. Y., *August* 9, 1837.

---

46. *Note on the Poisonous Properties of the Milky Humour secreted by the Cutaneous Pustules of the Land Lizard and the Common Toad.* By MM. GRATIOLET and CLOEZ.—It is an ancient and still common opinion that the land salamander or lizard (*Lacerta Salamandra*, Linn.) possesses a subtle venom, but at present this is deemed fabulous by the scientific, and the fluid secreted is only allowed to be acrid.

An accidental occurrence, some years since, caused doubts as to the correctness of this last. Several frogs placed in a cask with salamanders were at the end of eight days found dead. And having recently received a number of these last animals in a very healthy condition, we deemed the subject worthy of further experiments.

The liquor obtained from the cutaneous pustules is of a beautiful white colour, with a powerful odour. It flows freely when taken, but coagulates. Indeed, alcohol coagulates it instantly.

A small quantity inserted under the skin of the thigh of a small bird showed no marks of causticity, as is usually ascribed to it. But in two or three

minutes, the feathers bristled up, the bird staggered, its beak opened, and it made a convulsive noise. Soon it turned its head back, uttered plaintive cries, turned several times on itself, and died.

A yellow-hammer, wounded on the wing, died in less than three minutes; a chaffinch, similarly wounded, in twenty-five minutes, after two epileptic fits. Many other small birds died in about six minutes, and it was observed that life was prolonged when there had been a free discharge of blood from the small incision.

We experimented on a large bird—the turtle dove, but it died in twenty minutes, after terrible convulsions with alternate paralysis. *All the birds experimented upon had epileptic convulsions.*

When the poison was inserted under the skin of the thigh of a mouse and of a Guinea pig, these animals respectively manifested, at the end of six minutes, great suffering. The breathing was quick and painful; they slept, but the sleep was constantly interrupted by slight convulsions resembling the effects of an electric shock. Still, with all these animals the symptoms vanished in a few hours, and they recovered perfectly.

The Toad.—The milky fluid contained in the dorsal and parotid pustules of this animal is thick and viscous, of a yellowish colour, an unpleasant odour, and a nauseous bitterness, quite insupportable. Greenfinches and chaffinches, inoculated with it, died at the end of five or six minutes, with similar symptoms as in the previous case, *but without convulsions.* Even when dried, the fluid destroyed birds.

So far as anatomical examinations could be made, it was ascertained that all laboured under marked apoplexy.

It would thus seem that the common, vulgar opinion as to the venom of the toad is far from being fabulous.—*Comptes Rendus*, April 21, 1851. T. R. B.

—

47. *On the Diminution in Weight of New-Born Infants.* By Dr. Hoffman.—It is a popular opinion that new-born children fall away during the early days after birth; and, seeing that, during that period, they evacuate meconium, the epidermis exfoliates, and matters are expired from the lungs, while the little milk they take is little else than a purgative colostrum, there is reason for its entertainment. Dr. Hoffman had thirty-six children who were successively born at the hospital at Wurzburg, weighed every morning, and in the present article, he gives the tabulated report of the daily examination; from which the general conclusion is drawn, that all children for the first thirty-six or forty-eight hours after birth become lighter, such diminution in the majority continuing until the third day. From this period, they increased again, so that by the fifth or sixth day, they have in general recovered the weight they possessed at birth.—*British and Foreign Medico-Chirurgical Review*, No. 13, Jan. 1851, from a *German Journal.* T. R. B.

—

48. *On some Points in Medical Jurisprudence, deduced from a Series of Post-mortem Examinations for Judicial Purposes.* By Dr. Casper.—(*Casper's Wöchenschrift.*)

1. *Wounds inflicted during life.*—These are usually stated to be distinguishable from wounds inflicted after death by the suggillation which is met with round their edges. In those wounds, however, which are inflicted by shooting, or puncturing one of the large internal vessels, in which death takes place suddenly, without even agony, this sign will be wanting.

2. *External signs of violence absent.*—It is customary, where no external signs of violence are exhibited by (on) bodies found dead, to infer that violence has not been done, and burial is ordered accordingly. Over how many murders has mother earth in this way spread her mantle! In many cases, rupture of the ribs, livers, spleen, heart, &c., have caused death, and exhibited no outward signs of the fatal injury. (True, and worthy of frequent repetition, but not new. T. R. B.)

3. *Death from loss of blood* is usually characterized by the anæmic aspect of the body. It has been stated, as a rule, that the veins of the membranes of the brain do not partake of this character of bloodlessness. In many cases of

rupture, or wounds of the large vessels, these veins have been found completely empty.

4. *The tongue, in death by drowning,* is said to be always protruded beyond the teeth. Dr. Casper does not deny that this is very often the case, but refers to the details of several instances in which it was found behind the teeth, and to others also of death from different causes, *e. g.* wound of the heart, poisoning by sulphuric acid, in which it was found protruded.

5. *The uterus putrefies last of all the soft structures, except the lungs.*—This is often seen in the dissecting rooms, and more especially so in the bodies of the dead by drowning. Owing to this circumstance, the presence or absence of pregnancy can be determined with certainty.

6. *The mark of the umbilical cord on the neck* is not difficult to distinguish, in new-born children, in cases of intentional strangulation, though of considerable importance in a forensic point of view. There will be found, in such cases, a furrowed, roundish, volatile mark, the width of the cord, certain parts of the neck being slightly suggillated, usually doubly, in many cases trebly. This mark also presents parchment-like spots in different parts of its course; seldom any ecchymosis of importance, and never to the depth of the constriction. The fat of the folds of the skin may in winter assume a parchment-like hardness, which might be mistaken for strangulation, but the absence of the signs, besides the depression, is sufficient to prevent error on this account.—*London Medical Gazette,* Jan. 17, 1851. T. R. B.

—

49. *Sale of Arsenic, Regulation Act.*—The principal provisions of this act, which was introduced by the Earl of Carlisle, and has recently passed, are as follows: The seller of any quantity of arsenic must enter in a book, kept for the purpose, the name and residence of the purchaser, and the purpose for which he alleged he wanted the article; the purchaser must also, in all cases, sign his name, and, except in certain cases, the arsenic should not be sold except in presence of a witness. With the view of preventing accidental poisoning, it has been proposed to add some foreign colouring matter to the arsenic, so that it may not be mistaken for flour, meal, carbonate of soda, or the like. But as the introduction of foreign matters might interfere with some of the purposes to which arsenic is applied in arts and manufactures, it is determined that no person shall sell less than ten pounds weight of uncoloured arsenic; unless it were stated by the purchaser that he wanted it for some purpose in which the introduction of an adventitious colour would be injurious. It is proposed that soot be employed as the colouring matter. *Arsenic is to be sold to none but male adults,* and where less than ten pounds of uncoloured arsenic is required, there must not only be the signature of the purchaser, but also the presence of a witness known to the seller.—*London Journal of Medicine,* April 1851. T. R. B.

—

50. *Poisoning.*—A return has been printed, by order of the House of Commons, of the number of persons, male and female, tried in the United Kingdom, for murder and attempts to murder, by the administration of poison, from the year 1839 to the year 1849 inclusive. The number of persons so tried in England and Wales, during the ten years, was 154; namely, 69 males and 85 females; the number of convictions on either charge was 66. In Scotland, the number of trials for murder by poison since 1830, have been only nine, 2 males and 7 females; the convictions were 3. The trials for attempts to murder were 6, 3 males and 3 females. Total trials in Scotland 15; total convictions 7. In Ireland, the trials amounted to 56; 25 males and 31 females, and the convictions were 13. In 1839, there occurred only one conviction in Ireland for murder by poisoning. In 1841, there were 5 convictions found against 10 persons accused. In 1849, the number of indictments was 13; 7 males and 6 females, and the convictions 3.—*Monthly Journal of Medical Science,* December 1850. T. R. B.

—

51. *Poisoning by Strychnine. Tannin proposed as an Antidote.*—A female aged 40, of a feeble constitution, and suffering under rheumatic neuralgia, was advised, in conjunction with other remedies, to use the nitrate of strychnine.

The dose prescribed was one twenty-fifth of a grain, with white sugar, every three hours. The invalid hastened to cure herself, and, without advice, doubled the dose and took it every hour. Vertigo occurred on taking the first. At the end of six hours, she had taken half a grain. The vertigo now became more intense, and she soon fell into a state resembling opisthotonos, with a feeble and frequent pulse. The spasms, however, gradually subsided, but the vertigo remained, with nausea, occasional vomiting, and difficult respiration. In this condition, cold water was frequently applied to the head, and tannin, to which citric acid and bicarbonate of soda were added on account of vomiting, was given in solution. The vomiting was soon allayed, and then the tannin alone was given in simple syrup. In twenty-four hours, all the severe symptoms were removed.

The tannin, of which the dose had been sixteen centigrammes, was now replaced by a less powerful astringent.

In giving the particulars of this case, it is conceded that the use of tannin was empirical, and the success is not ascribed to it solely.—*Journal de Médecine et de Chirurgie Pratique*, June 1851. T. R. B.

—

52. *Case of Poisoning by Scheele's Green (on Paper Hangings).* By Thomas Stewart Traill, M. D., Professor of Medical Jurisprudence in the University of Edinburgh, May 31, 1851.—A child, aged three years, had obtained some slips of paper coloured with this material (Scheele's Green, or arsenite of copper), and had chewed some of it. He returned home, complaining of severe pain over his abdomen, and vomited repeatedly. His mother observed some shreds of this paper in his hands, and some of the green matter on his lips and cheeks. The vomiting returned at intervals with much severity, the pain was violent, and Dr. Traill was sent for; but, being from home, did not see the patient until three hours after he had been taken ill. Meantime, his pulse had become feeble, his extremities cold, and face livid. On seeing the patient, the vomiting was found somewhat abated and the skin recovering its heat, but the pain in the bowels was still acute. On learning the symptoms, Dr. Traill inquired whether the child had swallowed anything unusual, and was informed of the facts just stated.

He immediately prescribed the only remedies at hand—magnesia in milk, with the whites of two eggs diffused in water—until he could procure the hydrated peroxide of iron. But the symptoms were so much relieved before this could be obtained, that he deemed its use unnecessary, and next morning the boy was quite convalescent.

On the third day, the child passed by stool one or two fragments of the paper, on which some of the green colour was still visible, and for a few days more he did not eat his food with his usual relish, but no other bad consequence has followed.

Dr. Traill preserved the shreds of paper which the child had carried home, scraped off a portion of the green colour, mixed it with a little soda flux, and subjected it to heat in a tube; when he obtained a distinct metallic crust, with a crystalline inner surface, an alliaceous smell, and resolvable by heat and air into white crystals, with triangular facets, proving the colouring matter to contain arsenic, of which the quantity appears much more considerable than he expected. On comparing the pigment on the paper with Syme's Hernerian Colours, it answers to *pale emerald green.*

It seems improper to employ so dangerous a material as arsenite of copper, in such large quantity, on articles like paper hangings, which may often come in the way of children, or other persons little aware of the deleterious properties of this colouring matter.—*Monthly Journal of Medical Science*, July 1851. T. R. B.

—

53. *On the Presence of Mineral Poisons in the Nervous System, as a Sequence of Acute Poisoning.* By M. Roucher.—This subject does not appear, as yet, to have been a matter of especial attention. Dr. Flandin, in his "Treatise on Poisons," decided it in the negative. Still there have been cases related of late, in which, as a result of poisoning more or less rapid, arsenic and lead have been found in the encephalon by several experimenters; copper has been de-

tected, in a solitary instance, in the spinal cord; and again, according to M. Millon, antimony accumulates in the brain in those fatal cases where the nervous symptoms indicate the principal seat of the poisonous action.

The author places but little reliance on previous facts, as they have not been sufficiently generalized. He performed a full series of experiments on dogs, with arsenic, lead, copper, and mercury.

In two made with arsenic, that substance was found in each case in appreciable quantities in the brain.

Mercury was also constantly found in three cases of poisoning with corrosive sublimate.

Copper was detected in five cases out of six, when sulphate of copper had been employed in various doses. The proportion of oxide of copper, estimated in three instances, varied from three to ten *dix-millièmes*. When no poison had been taken, the brain of dogs did not manifest an appreciable quantity of copper.

Lead was obtained in the proportion of eight *dix-millièmes* of the metal from the brain of a dog, who had been dead three days, and to whom three grammes of the acetate of lead (with the œsophagus tied) had been administered. The proportion is evidently extraordinary.

These results render it probable that similar ones may be obtained with other mineral poisons, and they seem to justify the opinion that poisons generally may exercise a special action on the nervous centres.—*Comptes Rendus*, April 28, 1851. T. R. B.

—

54. *Homeria Collina.*—I introduce this plant (which is known to almost every child in the colony as the Cape Tulip), not for its therapeutical uses, but for its obnoxiousness. The poisonous qualities of its bulbs appear to have been known to some extent years ago; but judging from the rapidity with which death ensued in a recent case, when they had been eaten by mistake, it must be of a very poisonous kind. To Dr. Laing, Police Surgeon of Cape Town, I am indebted for the particulars of a most melancholy case of poisoning, caused by this bulb.

A Malay woman, somewhat advanced in years, with her three grand-children, respectively of the ages of twelve, eight, and six, partook, on the 18th of September, 1850, of a supper consisting of coffee, fish, rice, and ate along with this a small basin full of the bulbs of the *Homeria Collina*. The exact quantity which each ate is not well known. They appear to have supped between seven and eight, and retired to bed at nine o'clock, apparently in good health.

About one in the morning, the old woman awoke with severe nausea, followed by vomiting, and found the children similarly affected. She endeavoured to call for assistance, but found herself too weak to leave her bed, and when at five o'clock assistance arrived, the eldest girl was found moribund, and expired almost immediately. The little boy of eight years died an hour afterwards, and the youngest child was found in a state of collapse, almost insensible, with cold extremities, pulse scarcely fifty and irregular, pupils much dilated. The symptoms of the grandmother were nearly similar, but in a less degree, accompanied by constant efforts at vomiting. By using diffusible stimulants, she and this child eventually recovered.

The body of the oldest child was examined twelve hours after death. Marks of intense gastritis were found, particularly about the cardiac and pyloric orifices. The inflammation extended throughout the whole course of the small intestines, and there was great venous congestion in the brain.

It is remarkable that, in cases of poisoning from *fungi*, violent diarrhœa is present with vomiting; whereas, in the present case, obstinate constipation prevailed. Most probably, all plants belonging to this genus partake of the poisonous property, which, in the case mentioned above, was not dissipated by boiling. Floræ Capensis Medicæ Prodromus. By L. Pappe, M. D.—*Pharmaceutical Journal*, July 1851. T. R. B.

—

55. *Nicotine.*—Great interest was excited at the Academy of Medicine of Paris, on the 4th of June, 1851. A case of poisoning by nicotine, occurring

in Belgium, was attracting the public attention everywhere. M. Orfila, with the zeal and ardour so characteristic of him, commenced a new series of investigations on a subject to which he had previously applied himself in 1840; and on the 20th May, he deposited with the Academy a memoir containing the results of his recent labours. But the position of the accused criminals (Bocarmé) required great reserve, since they were on their trial. M. Orfila delayed the publication, and hastened to Mons, in order to communicate with the distinguished chemist of Brussels (M. Stas), to whom had been committed the chemical examination on the trial. The moment has now arrived when he is justified in breaking silence. The administration of nicotine is confessed and proved, and the only points remaining for the jury to consider are the circumstances attendant on its exhibition.

The members of the Academy received the communication with deep interest and attention.

M. Orfila proposed to demonstrate—

1. That pure nicotine possesses characters as peculiar and marked as those which belong to mineral poisons.

2. That it is possible to detect its presence in the digestive canal, the liver, the lungs, and all the principal viscera, when it has been absorbed.

[Thus far, we quote from an editorial article. The following is taken from a reported sketch of M. Orfila's paper, in the same Journal:—]

In depositing with the Academy his memoir on the 20th May, he was unwilling to have it read, lest it might exert some influence on the case which was to be tried at Mons, eight days thereafter. This difficulty is now, however, completely obviated. I have attended the three first sittings of the Court of Assizes of Hainault, and have heard the questions put to the accused, and the testimony of several witnesses. It will not aggravate the condition of the accused, even if my memoir be published. M. De Bocarmé confessed that he had prepared the nicotine—that his brother had taken a notable dose of it, and from which he died suddenly. Again, it was not to be doubted that M. Stas had detected the poison in the body.

After describing the physical and chemical properties of nicotine, several of which had not been previously noticed, M. Orfila stated the experiments made by him in 1840, and now very recently, to determine its actions on the animal economy. It resulted from all these, that this alkali, when anhydrous, is extraordinarily active, as one or two drops are sufficient to induce the most grave intoxication, and indeed death in dogs to which it is given. One drop applied to the eye of a dog poisoned it so promptly and severely that it died in two or three minutes. When the poison was applied, the animals ran round the place where they were for a few seconds and seemed vertiginous, but they soon fell on the right side, and were seized with convulsions, at first light, but presently severe and tetanic. Death ensued in one, two, or three minutes, if the alkali was anhydrous, and in several minutes if it had retained a certain proportion of water.

On examination, the tissues to which the nicotine had been applied were found inflamed and altered, as they are from taking ammonia.

As to chemical results, M. Orfila announced that he had detected the poison in the liquids of the stomach, in that viscus, in the liver, spleen, kidneys, lungs, and indeed in the blood. To accomplish this, he has followed two processes.

First Process.—Macerate the suspected matter for some hours, in from 150 to 200 grammes of distilled water, acidified by three, four, or six drops of concentrated sulphuric acid. A soluble sulphate of nicotine is thus formed. Filter and evaporate by high heat, until the fluid is reduced to one-third, or one-fourth of its previous volume, and then again filter, in order to get rid of a notable quantity of organic matter, which is deposited during the evaporation. The liquor thus filtered is acid, but is rendered alkaline by pure caustic soda, and the sulphate of nicotine becomes sulphate of soda and nicotine. These are separated as follows: 1. Distil the liquor in a retort; condense the nicotine in a receiver plunged in cold water. The liquid thus collected is alkaline, and consists of water and nicotine. Add a very small proportion of ammonia, to prevent the decomposition of the organic matter, which still adheres to the dis-

tilled fluid. It is then only necessary, in order to obtain the nicotine perfectly pure, to evaporate by heat the nicotinized water; the ammonia and the water pass off, and the nicotine remains. 2. Or, pour sulphuric ether on the liquor rendered alkaline by soda. The ether dissolves the nicotine, without any effect on the sulphate of soda, and without sensibly dissolving the organic matter. Let the ethereal solutions be decanted off, and the ether allowed to evaporate spontaneously. Nicotine remains. This process is preferable to the previous one, in which heat is employed.

Second Process.—Macerate the suspected matter for some hours in sulphuric ether, which dissolves the free nicotine, and also that which has been changed to soap through the fatty matters contained in the organs. This saponification appears to be a constant occurrence. The fluid thus obtained is decanted, and allowed to evaporate spontaneously. A fatty product is obtained, which is to be frequently treated with caustic soda. The soap is thus decomposed, and the nicotine left free. This can be further purified by heat, as above directed, or, what is still better, treating it anew by ether.

M. Orfila gives the preference to the process in which the nicotine is saturated with sulphuric acid extremely diluted.

In the course of his memoir, the author did full and ample justice to M. Stas, Professor of Chemistry at Brussels. This gentleman had been charged by the government with the chemical examination of the body of Gustave Fouguies. He had detected (according to M. Orfila) nicotine in the tongue, the stomach, the liquids contained in the stomach, the liver, and the lungs. He had also discovered it in the boards of the floor of the dining room, although they had been washed with hot water, oil, and soap. M. Stas had experimented in a manner similar to that recommended by Orfila in his first process, except that he had used oxalic acid, instead of diluted sulphuric, and also had employed alcohol to get rid of organic matters.—*Gazette des Hopitaux; La Lancette Française*, June 5, 1851.

A brief sketch of the circumstances attendant on the above case may be here added for the information possibly of some of the readers of the Journal.

The Comte Bocarmé, although of noble birth, is represented to have been an insolent and cruel man, detested by the rural population where he resided. He married, in 1843, the only daughter of a merchant, who had an only brother of weak constitution—so weak, indeed, that from disease it had been necessary some years previous to amputate the right leg. It is well established that Bocarmé expected sooner or later to fall share to his wealth; and this was the more necessary, being profligate and reckless in his expenses, and having wasted the inheritance of his wife. Suddenly it was understood that Gustavus, his brother-in-law, was to be married, and that very shortly.

But all this was ended by the news of the death of Gustavus, at the Château of Bitremont, where the Count and Countess resided, and whither he had gone to dine with them. It was announced, and the lady to whom he was affianced was so informed by a messenger from the countess, that the sudden death was caused by apoplexy.

The appearances on the body, however, contradicted such an idea. There was distinct contusion on the front part of the neck; there were several marks of scratches on the left cheek; and on the left jaw was a corrosion affecting the epidermis, and evidently produced by a caustic liquid. And with all this, the tongue, the mouth, the throat, and the stomach, each bore sensible marks of the passage of such a substance.

The medical examiners were of opinion that a corrosive fluid had been forced into the mouth of Gustavus, and that the external injuries indicated the use of violence, and also the spilling of a portion of the liquid, which fell on the left jaw. Count Bocarmé also bore marks of bites on his left hand, and scratches on his fingers.

Chemical analysis proved that nicotine had been employed, and it was shown that the count had, for at least ten months previous, been engaged in preparing this substance. In Feb. 1850, he had applied to M. Loppens, Professor of Chemistry, in the Industrial School of Ghent, for information how to extract by chemical processes the essential oils of vegetables, mentioning, by way of

explanation of his curiosity, that he had, during his travels, observed American savages render their arrows poisonous with the juices of certain plants. He consulted Prof. Loppens particularly as to the manner of obtaining the essential oil of tobacco by distillation, and ordered an apparatus of copper for this purpose.

Some time after, he showed to Loppens a specimen of supposed nicotine, which was declared not to be that substance. He recommenced operations in the laboratory of the professor, and under his directions, and succeeded in obtaining two drops of pure nicotine. A second attempt at home was again unsuccessful. Loppens again renewed his instructions, and the criminal, on a third visit, informed the professor of his final success and of the most destructive effect of the substance on animals.

He did not stop with this, but purchased a more extensive apparatus at Brussels, and at last, after an uninterrupted labour of two days and two nights, succeeded in obtaining two phials full of nicotine. When he had accomplished this, he secreted the apparatus so effectually, that it was six weeks after the murder, and after a diligent search, that it was finally discovered.

This last, certainly, is not in accordance with the manner in which scientific researches are usually made. It was also proved that he gave himself a fictitious name to Loppens and other chemists, calling himself Borant.

It was also shown that the coachman had been sent on a frivolous errand to some distance from home; that the servant in waiting was ordered to leave the room, after a certain time; that a person was heard to fall suddenly on the floor, making piteous cries, and that these in a short time ceased.

It would certainly seem impossible but that the countess (the sister) was aiding and abetting in the poisoning, particularly as it required to be poured into the mouth to produce the effect. She, however, was acquitted, and the count condemned and executed.—*Gazette des Tribunaux*, May 28, 1851.

T. R. B.

—

56. *On the Changes which Calomel undergoes in the Intestinal Canal.* By Dr. George V. Oettinger.—The author has published his researches in a thesis *at* Dorpat, and his experiments have led to the following conclusions: They establish, in the first place, the truth of Mialhe's statements, that calomel, when boiled with concentrated solutions of common salt, or of sal ammoniac, undergoes conversion, but only in a small proportion, into bichloride of mercury; red precipitate, on the contrary, forms a soluble oxychloride very readily with sal ammoniac, and sparingly with common salt, and also with the gastric juice. Metallic mercury and Hahnemann's oxide (an ammonio-subnitrate) undergo an almost unappreciable change with sal ammoniac, and only at a boiling heat; white precipitate undergoes the change with sal ammoniac at ordinary temperatures.

On the other hand, however, he found that the alkaline chlorides in the gastric juice were in much too minute quantity and too diluted to exert any obvious action on calomel, and that the gastric juice, even when it contained a much larger proportion of chloride of sodium than usual, remained without action on calomel and metallic mercury. Mialhe's experiments thus lose all value, in reference to the explanation of the *modus operandi* of calomel.

Lastly, Dr. Oettinger found that, after large doses of calomel, there were found in the stomach, and both the larger and smaller intestines, along with traces of inflammation of the mucous coat, always blackish grains and masses of sulphuret of mercury, and an increased proportion of biliary matter. The last is the cause of the green colour of calomel stools, and not the sulphuret of mercury, which can readily be distinguished from the green matter beside it. The increased secretion of bile shows itself also by the distension of gall-bladder.—*Quoted from a German Medical Journal*, in the *Monthly Journal of Medical Science for January*, 1851, *conducted by Drs. Christison, McClagan, Simpson, Robertson, and J. H. Bennet, and Messrs. Syme and Goodsir.* The editors subjoin the following:—

(We never had belief in M. Mialhe's hypothesis, which accounted for the passage of the insoluble calomel into the system by its being converted into the

soluble bichloride by the action of the alkaline chlorides in the gastric secretion. What we disbelieved on theoretical grounds, appears to be amply refuted experimentally by Dr. Oettinger.)

I made the following statement on this point, of course previous to the publication of the above (see "Medical Jurisprudence," ii. 587): "Mialhe, some years since, asserted that calomel could be converted into corrosive sublimate, by exhibiting some of the latter with one or other of the alkaline chlorides. This, again, has been denied by Lepage and D'Ollegrio, and at all events is still very doubtful. But, in his last edition, Orfila mentions the following: To an individual labouring under gastro-encephalitis, calomel in powder was given to the amount of eight or ten grains daily. He passed, by stool, a notable quantity of the black sulphuret of mercury, produced, doubtless, by the disengagement of sulphuretted hydrogen." T. R. B.

57. *On Bromine as a Toxicological Agent.* By Henry Wurtz, assistant in Yale College Laboratory.—Mr. Wurtz has not found, in the various toxicological writings, any suggestion as to the use of bromine for destroying the organic matter of stomachs.

An experiment with it was made upon a human stomach sent to the laboratory for examination. "The entire stomach with its contents, in the same state in which it was sent, was introduced into a porcelain dish covered with water, and about an ounce of bromine poured in. A gentle heat was now applied, much below the boiling point of water, and the stomach was turned over from time to time with a glass rod."

"When the stomach had entirely disappeared, which took place in less than half an hour, some hydrochloric acid was added, and the heat continued for a few minutes longer. The liquid was now ready for filtration, and left upon the filter only a few flakes of organic matter, together with a little fat, and that portion of the contents of the stomach which was insoluble in hydrochloric acid. It may be here noticed that a piece of paper which had been improperly wrapped around the stomach by those who sent it, and which could not be separated from it, also a cotton string, which had been tied around it by the same parties, were also completely destroyed by the bromine."

Mr. Kurtz observes that "especial care should be taken that this operation (the evaporation of the bromine) be performed in a strong draught, because the action of the bromine vapours upon the lungs and eyes is injurious beyond the ordinary belief. In case of accidental injury from this cause, the best antidote is inhalation of chloroform or ether."—*Silliman's Journal*, New Series, vol. xi. p. 405.

There is a case of poisoning by bromine in a late number of the "New York Journal of Medicine," which should be read in connection with the above. The article is so much used in the art of daguerreotyping, that physicians should inform themselves, so as to be prepared in case of accidents. T. R. B.

MISCELLANEOUS.

58. *On the Action of Water upon Lead.* By J. Birkbeck Nevins, M. D.—The effect of water upon lead has lately excited so much attention in reference to sanitary questions, and the suitableness of this metal for water pipes and cisterns, that whatever adds to our experience upon the subject is not without value.

Up to a very recent period, our knowledge has amounted, practically speaking, to the following:—

Lead pipes have been used for years, in many towns and in private houses innumerable for conveying spring water for internal consumption, and rain water for external purposes, without producing any injurious consequences; but occasionally accidents have happened which have called attention to what have then been considered exceptional cases, and the general impression amongst chemists and the public has been, that *hard* waters did not act injuri-

ously upon lead, whilst distilled water invariably, and soft waters generally, acted upon it in a dangerous degree.

In making this statement, chemists have, however, been aware that it was not the distilled water which acted upon the lead, but the oxygen of the air which happened to be dissolved into the water; in proof of which, lead has been kept for years in vessels filled with freshly boiled distilled water, and then hermetically sealed, without undergoing the slightest change.

The oxygen of the air combines with the lead, forming oxide of lead, which is separated from the surface of the metal by the slightest disturbance in the water, and leaves a fresh surface to be acted upon by further oxygen. The oxide thus formed combines partially with carbonic acid, also derived from the air, and forms carbonate of lead; and the white deposit, in the case of distilled water, is a variable mixture of oxide and carbonate of lead, in which, however, the proportion of carbonate is much smaller than that of oxide. In some experiments, which I made several years since, I found it to be 8.02 grains of carbonate, and 71.97 grains of oxide, or very nearly one part of carbonate to nine of oxide.

In proportion as water approaches distilled water in softness (purity?), it has generally been found to act upon lead. In the case, however, of *hard* water, the action has been different. *With comparatively few exceptions*, water owes its hardness to the presence of sulphate of lime in small quantities, and when this is dissolved in the water, oxide of lead is formed from the air as before, but, instead of being converted into carbonate, it is changed into sulphate by the sulphuric acid of the sulphate of lime, which adheres so firmly and uniformly to the surface of the lead as to form a protecting layer or varnish, which prevents the access of fresh oxygen. Nothing which has recently been discovered throws any discredit upon the experience of chemists thus far: but the general inference sometimes drawn from this, "that *hard* water protects lead, whilst soft water does not," is now disputed.

It is said that if all waters were hard from the presence of a *small* quantity of sulphate of lime, it might perhaps be true; but some are hard from the presence of soluble carbonate of lime or magnesia, and though a sulphate may protect the lead, a carbonate does not.

The late Prof. Daniell was consulted several (about six) years since, on this subject, and he found, from experiments published at the time, that soluble carbonate of lime did *not* protect lead, but, on the contrary, acted upon it with rapidity. About the same time, also, some cases of accidental poisoning arose from the employment of leaden cisterns for pickling tubs, in which the pickling brine was found to be strongly impregnated with chloride of lead, which, being a partially soluble compound, did not adhere to the lead and form a protecting layer.

So far, then, our knowledge appeared to extend until the attention lately bestowed upon sanitary questions brought up this subject, amongst others, for examination. It was known that distilled water acted rapidly upon lead, causing a rapid promotion of a mixed oxide and carbonate. It was known that, in innumerable cases, an average quantity of sulphate of lime in common hard water did protect the lead, and it was inferred, therefore, that the presence of a soluble sulphate would be a sufficient protection in any case. It was known, but not so generally, that a soluble carbonate of lime or magnesia did not protect lead; but this was practically looked upon as an unimportant exception to the safety which hardness confers.

It was known that chloride of sodium in solution acted upon lead; but the fact was little dwelt upon.

It has, however, lately been stated—

1st. That *hard* water does not protect lead so well as *soft* water.

2d. That, if even moderately hard water protects lead, very hard water, on the contrary, acts rapidly upon it.

3d. That magnesian salts are peculiarly injurious to lead.

4th. That water, hard from the presence of carbonates and chlorides, acts with peculiar rapidity upon lead.

I have therefore tried the following experiments to test these statements:

Sheet lead, and common lead piping, were exposed to the action of water containing the following solutions, with the results now to be described. In every case, the lead remained in the water for a week.

Description of Experiments.—In the first set of experiments, sheet and pipe lead were exposed to the action of a strong solution of sulphate of magnesia (grs. iv, and also grains x, to the ounce) in distilled water.

2d set. The same solution of sulphate of magnesia, combined with bicarbonate of soda (grs. iv to the ounce).

3d set. Carbonate of magnesia, partially redissolved by carbonic acid in distilled water.

4th set. Carbonate of lime, partially redissolved by carbonic acid gas in the same way.

5th set. Solution of common salt (gr. ½ to the ounce) in distilled water, and the same strength in the common spring water of Liverpool, which contains a moderate quantity of sulphate of lime.

6th set. Solutions of common salt, as above, only stronger (grs. ij in the ounce).

7th set. Solutions of common salt (gr. ½ and grs. ij in the ounce), in combination with gr. j and grs. iv of sulphate of magnesia, respectively; *i. e.* gr. ½ with grs. j, and grs. ij with grs. iv.

8th set. The same experiment, only substituting chloride of calcium for chloride of sodium.

Object of the Experiments.—It will be seen, on examining the above experiments, that nearly every point in dispute was brought under investigation; viz., the action of *hard* water, which does not contain sulphates, in experiments 3 and 4; the action of *strong* solutions of sulphates, in experiment 1; the modifying effect of the presence of excess of carbonic acid along with the sulphate, in experiment 2; the effect of chlorides of various strength, in distilled water, and in water containing small and large amounts of sulphates of both lime and magnesia, in experiments 5, 6, and 7; the difference in the effect of chlorides of equal strength, dependent upon difference in the base with which the chlorine is combined; and, lastly, the difference in the effect produced upon sheet lead, and common pipe lead.

Results—Different kinds of Lead.—The difference between the effect upon the sheet and the pipe lead was so slight in every case as scarcely to merit notice; if anything, the pipe lead was the least affected, as shown by the visible effect of sulphuretted hydrogen, for quantitative analysis was not resorted to in any instance. When, however, tea lead was operated upon, the difference was very great, which corresponds with results I obtained many years since, in which I found that, whilst the deposit from pure lead in a certain time weighed 5.5 grains, that from an equal surface of tea lead, placed under precisely similar circumstances, weighed 11.5 grains.

This result might almost be anticipated, as impurity in common pipe lead is more likely to be zinc than any other metal, and this would retard rather than hasten the action of the water upon the lead, by forming a galvanic arrangement; whilst the tin which is stated to be present in tea lead would hasten the action upon the lead, as it is less easily acted upon by chemical agents than lead itself. The difference in effect of the different strengths of the same solution was by no means strongly marked, the result being so nearly the same at the end of the week's trial, that it is unnecessary to make any distinction, in speaking of them, between the solution of four grains of sulphate of magnesia, and that of ten grains; between the half grain and the two grains solution of chloride of calcium, &c.

Sulphates.—The solution of sulphate of magnesia produced a very decided effect; the bottom of the jar in which the experiment was made became covered with a thick white layer, and a coating, similar in appearance, covered the surface of the lead, but was removed without difficulty by gentle scraping with the nail: on transmitting sulphuretted hydrogen, the white sediment became a black powder, and the water assumed a brown hue. Thus it was clear that the strong solution of the sulphate did not form a protecting layer upon the lead, though repeated experiments, year by year, shown to my class of chemical students, have con-

firmed beyond dispute that the Liverpool water, which contains a small quantity of sulphate of lime, does protect it. It appears to me that the difference in the effect of a strong and a weak solution of a sulphate is owing to the rapidity with which the precipitate is formed by the first, which prevents its adhering firmly, while in the second it is formed so slowly that its adhesion is uniform and perfect.

Carbonates.—All the carbonates acted upon the lead so far as to cause the water to become decidedly coloured by the sulphuretted hydrogen; and a dark-coloured deposit was formed amongst the superfluous carbonate of lime and magnesia. The effect from the bicarbonate of soda was the most decided, and this, notwithstanding the presence of a small quantity of sulphate of lime in the common spring water, and a large quantity of sulphate of magnesia in the distilled water; whence it is evident that neither a large nor a small quantity of a sulphate acts as a protection in the presence of a soluble carbonate.

Chlorides.—In every case the water became brown on the transmission of the sulphuretted hydrogen, but the solution of chloride of calcium was by far the most affected, and a decided coating was formed upon the lead in it, which was not the case in any of the solutions of common salt, in which the lead retained its ordinary appearance, and no precipitate was found upon the bottom of the jars. The effect of the chlorides was, therefore, less marked than that of the other solutions employed.

Conclusions.—From the above experiments, it is clear that hard waters do not protect lead, simply from the fact of their being hard, but that the protection, when effected, is dependent not only upon the nature of the salt causing the hardness, but also upon the proportion present; for, whilst all experience proves that a small amount of a sulphate, at any rate of a sulphate of lime, does protect the lead, a large quantity of sulphate of magnesia acted considerably upon it.

It appears, also, to be proved that chlorides act upon lead, whether with or without the presence of sulphates, but that their action is not so great as that of soluble carbonates, which produce a rapidly injurious effect upon the metal. At the same time, these results do not practically affect the question of the safety of using lead for common water, so far as sulphates, at any rate, are concerned; inasmuch as the solutions here employed were, out of all proportion, stronger than any ordinary spring water, and the experience of years has proved that there are no bad consequences practically occasioned by the employment of this metal for water containing sulphates.—*London Med. Gaz.*, June 1851.

—

59. *Professor Faraday on Schönbein's Ozone.*—Professor FARADAY, in a lecture delivered before the Royal Institution, June 13th, 1851, commenced by stating that considerable mystery was attached to the subject which he proposed to bring before the members on the present occasion, namely, *Ozone.** This name had been given by Schönbein, of Basle, to a substance or condition of matter which manifested itself under very peculiar and widely different circumstances. Schönbein regarded it as an independent body, and a constituent of the atmosphere; but in his (Professor Faraday's) opinion, it was nothing more than an allotropic condition of oxygen. It was never manifested except where oxygen was present, and where, at the same time, water, in a liquid or vaporous condition, was found. No substance had ever been separated from the atmosphere where ozone existed; but its presence was manifested, not merely by the strong smell peculiar to it, but by certain well-marked chemical properties which the atmosphere containing it possessed.

When electricity is produced from a powerful machine, and allowed to be discharged by a point, there is a feeling of a current or aura as of vapour escaping, and, at the same time, a remarkable odour. If, during the passage of the electricity, a piece of paper, moistened with a solution of iodide of potassium and starch, be brought near, the discharge causes the production of blue iodide of farina. The blue colour thus produced is the result of the oxidation

* Probably derived from ὄζω, "having a strong smell."

of the potassium by the *ozone*, and the setting free of the iodine. This is one of the best tests for the presence of ozone. It was formerly supposed that nitric acid was produced by the discharge of the spark, and that the decomposition of the iodide was occasioned by this acid as a result of the union of oxygen with nitrogen in the air: but this theory will not account for the smell and other properties of this extraordinary agent.

Schönbein produces ozone in very large quantities by introducing into capacious bottles, with glass stoppers, pieces of cut and cleanly scraped phosphorus, with a small quantity of water, so that the phosphorus may be partly in and partly out of the liquid. A vapour slowly rises in a current. After ten or twelve minutes the ozone is produced, and may be procured in a mixture with oxygen and nitrogen by removing the phosphorus at a water-bath, and thoroughly washing the interior of the bottle with water, in which ozone is insoluble. This body is thus separated from the vapour of phosphorus and phosphorous acid. (This experiment was performed in three bottles, and several bottles of ozone previously prepared were now brought forward.) On introducing paper, wetted with starch and iodide of potassium, into one of the bottles, there was an immediate indication of the presence of this principle, by the production of a dark blue iodide of starch. Another remarkable property possessed by ozone was seen in its bleaching powers. Some ounces of a solution of sulphate of indigo were gradually poured into a bottle containing ozone, and shaken, when the colour was as completely destroyed as if chlorine or chloride of lime had been present. A very small quantity of ozone would thus entirely discharge the colour of a very large quantity of sulphate of indigo.

It has been already stated to be so little soluble in water, that a bottle containing it may be repeatedly rinsed with water without losing its ozonic contents. If, however, the stopper be removed, and it is exposed to air, it soon passes off. Ozone appears to be entirely destroyed by heat; or, at any rate, its production by electricity ceases when sparks are received from a red-hot metallic point. This fact was ingeniously illustrated by insulating a small galvanic battery, capable of raising at pleasure a platina ball to full redness: the battery was made part of the machine, and the platina ball the terminal point from which the discharges of electricity were received. The machine was set to work, and it was clearly and distinctly proved by Professor Faraday that the discharges from the red-hot platina ball produced neither the aura, the smell, nor the decomposing effects on iodide of potassium and starch, which were immediately manifested when the ball was allowed to cool, and the electric fluid was then passed through it.

The oxidizing properties of ozone are indicated upon metals which in practice it is rather difficult to convert to oxides—namely, silver. A piece of polished silver had been placed in a bottle of ozone for several hours, and had acquired a distinctly brown tarnish, not from sulphur, but from a process of ozonation, or, in other words, oxidation. Polished lead similarly treated was also oxidized. Ozone had always a tendency to bring metals and metallic oxides to their highest degree of oxidation. In this respect it was the most powerful oxidizer that was known. A tube containing several rings of metallic arsenic had been placed for a short time in a bottle of ozone. The metal had entirely disappeared, and had become transformed into arsenic acid. Paper wetted with a solution of proto-sulphate of manganese was introduced into a bottle of freshly prepared ozone, and in the course of a short time black spots appeared over the surface, proving that the manganese had passed to a higher degree of oxidation.

Nitrogen and sulphur are easily oxidized by it. Schönbein succeeded in procuring a quantity of nitre (of which a crystallized specimen was shown) by the agency of ozone in contact with nitrogen (of air) and potash. Sulphur was also converted to sulphuric acid. Paper stained with sulphuret of lead was immediately bleached when exposed to an ozonic atmosphere. Some curious experiments of Schönbein's were now shown, in which portraits and inscriptions were seen in white letters on a dark ground, as a result of placing stencilled metallic plates on paper which had been stained brown by sulphuret of lead. The uncovered spaces had been exposed to light and air, or *insolated*.

The result was that in these spots the sulphuret of lead had entirely disappeared, having been converted to colourless sulphate of lead by the oxidizing action of ozone.

The alleged bleaching properties of solar light on coloured articles are thus probably due to the agency of ozone—in other words, to a process of oxidation and alteration of the colour.*

Sulphuretted hydrogen, phosphuretted hydrogen, and all foul effluvia, are speedily oxidized and destroyed by ozone. It is, therefore, the great purifier of the air; and, owing to its continual exhaustion by oxidating processes, it is difficult to discover the presence of ozone in large and populous places, or in close and crowded dwellings. In the open air of the country, and on the sea, it constantly exists in a proportion which is probably subject to great variation, although ruled by laws which are at present unknown. Schönbein had contrived an *Ozonometer* for testing the amount contained in air. It is prepared by immersing paper in a solution made of one grain of iodide of potassium, ten grains of starch, and two hundred grains of water. The paper is dried, and, when intended for use, is exposed for some time to the air. There is no change until it is wetted with water, when, if ozone was present in air to which it had been exposed, a blue colour will appear, the intensity of which varies according to the quantity of ozone present and the length of exposure. The ozonometer consists of a series of papers thus coloured in different degrees, and bears some analogy to the cyanometer long since proposed by Humboldt.

Professor Faraday stated that, during the last autumn, when at Brighton, while walking close to the sea-shore, he exposed some strips of this prepared paper to the current of air coming over the sea, and, on subsequently wetting the paper, the presence of ozone was distinctly manifested by the blue colour produced. On another occasion he received on the same paper the current of air blowing over the town, but no trace of ozone could be detected in it. When he went, however, on the windward side of Brighton, so as to catch the air blowing over the downs before it reached the town, ozone was strongly manifested by the result. It was thus established that in populous places there is a constant consumption of this principle.

It had been shown that ozone was evolved with the ordinary electricity of the machine: it was now proved that the current of the battery equally leads to its production. Water was decomposed by a Grove's battery, and the oxygen and hydrogen evolved were conducted through a tube in which cotton soaked in potash had been placed to arrest any traces of acid. The gases evolved at the end of the tube decomposed the iodide of potassium on starch paper, and gave the usual indication of the presence of ozone.

Ozone is evolved in numerous chemical processes. If pure ether, mixed with water, be introduced into a wide-mouthed capacious bottle, and the vapour allowed to become diffused, it will be found that litmus paper introduced is not reddened, and that starch paper prepared with iodide of potassium is not rendered blue. If, however, a glass rod be made hot in the flame of a spirit-lamp, and then introduced into the vapour of the bottle, litmus paper held above the rod becomes strongly reddened, and the iodide of potassium paper intensely blue. In the oxidation of ether vapour at a low temperature, ozone is evolved.

Ether, in its ordinary state, has no bleaching properties; but the ether thus treated had acquired the power of discharging the colour from a large quantity of sulphate of indigo.

Essential oils are thickened by long exposure to light and air; they become ozonized and their properties changed. This was illustrated by reference to oil of turpentine. Freshly rectified and pure oil of turpentine was proved, by admixture with sulphate of indigo, to have no bleaching power. A small quantity of oil, which had been exposed to air and light (the air in a bottle half full), destroyed the colour in a few minutes, like chlorine.

* This hypothesis should have its correctness tested by the exposure of colours known to fade, in hermetically sealed tubes. Oils, it is well known, are bleached in close bottles; but they may contain air, and wherever there is air there is ozone, a very small proportion of which possesses remarkable powers of bleaching.

We cannot doubt that ozone exerts an important influence on the atmosphere, and, therefore, on the health of animals and vegetables. Schönbein, who is rather sanguine in his views, considers, from the irritant properties of ozone, that an undue proportion of it in air may give rise to epidemic influenza, bronchitis, and other affections of the air passages; and, in making experiments at Basle, he found that, concurrently with the prevalence of these disorders, ozone was very abundant in the air. On the other hand, it has been said that its deficiency in air will account for cholera or fevers, since the foul effluvia or miasmata giving rise to these diseases are not completely destroyed or removed by the oxidizing action of ozone. These, of course, are mere speculations, insusceptible of proof; but, in the mean time, it must be conceded that the subject opens a new road to experiment and observation, and that very important results may be obtained by following out Schönbein's researches.

[It would be difficult to describe the intense interest which this lecture excited in a large and crowded auditory. The illustrative experiments were most ingeniously contrived, and were remarkable for their novelty. The conclusions of the lecturer were fully justified by the results.

We think Mr. Faraday has afforded the right explanation in assigning the properties of ozone to an allotropic condition of oxygen. This extraordinary element, which forms by weight one-fifth of the atmosphere, eight-ninths of water, and one-half of the solid crust of the earth, may, like other supposed elements, be capable of existing in two states (allotropic) so widely differing from each other as to possess nothing in common excepting the name. Phosphorus presents this allotropic condition: in its ordinary state it is colourless, luminous in air in the dark, forming a deliquescent acid, is soluble in bisulphuret of carbon, and melts and burns at a very low temperature, about 108°. If phosphorus be kept for a time at a temperature between 464° and 482°, its properties are entirely changed: it acquires a brownish-red colour on cooling; it requires a high temperature for combustion; so that, unlike common phosphorus, it may be safely handled and carried in the pocket: it does not deliquesce in moist air, and is quite insoluble in bisulphuret of carbon. Liebig states that, while common phosphorus is poisonous, the altered phosphorus has no action on dogs. At a low red heat, the altered phosphorus is reconverted to and reacquires all the properties of ordinary phosphorus! There is, therefore, no apparent change of matter, but merely a change of state.

Thus Mr. Faraday considers that oxygen bears the same relation to ozone that ordinary does to altered phosphorus; that they may, under certain conditions, pass and repass into each other: but what those conditions are which produce and *regulate* the conversion of oxygen into ozone in the atmosphere it is impossible to say. Chemical agency, electricity, and magnetism may be the constant sources of production. Decay, disease, and death, affecting alike animals and plants, may be the means by which ozone or allotropic oxygen is consumed; but what power is it that *regulates* the quantity produced, and so adjusts it that it shall conduce to health and life? This is a profound mystery. It is obvious, from what is already known, that by an over-conversion of oxygen in the atmosphere into this allotropic condition, every living being would perish; and it is not improbable that the arterialisation of blood may be due, not to oxygen in its ordinary, but in its allotropic state. It is commonly said that oxygen is absorbed as such, and the red corpuscles of blood are regarded as oxygen-carriers; but the researches of Schönbein open a new path of research for physiologists.

It has been a mystery whence those sulphates and nitrates are derived which are frequently found in freshly collected rain water that has only washed the atmosphere. Ozone may be the agent by which the sulphur-gases and ammonia that are diffused in the atmosphere become oxidized and transformed to acids and salts. Acid springs, which are found in some parts of the world, and the great nitre beds of Ceylon, and on the coast of Peru, may owe their origin to this allotropic influence in past ages, and still working slowly at the present time. Although ozone does not appear to be dissolved by water, it is a question whether the oxygen in that liquid may not assume an ozonic condition,

and thus account for the rapid conversion of nitrogen, sulphur, and phosphorus, or the compounds containing them, to nitrates, sulphates, and phosphates. Every chemist knows the rapidity with which sulphuretted hydrogen is decomposed in all kinds of water exposed to air: sulphur is precipitated, or, if a base be present, acidified, and a salt formed. Oxygen, therefore, either in its ordinary or allotropic state, is the great purifier of air and water.

Oxygen in combination may be frequently in the ozonic state, or may become so during its evolution. Chromic acid not only bleaches, but sets free, iodine from iodide of potassium. Peroxide of hydrogen and other hyperoxides have a similar action. Chlorine and bromine resemble ozone in their bleaching powers, and in their action on iodide of potassium. The bleaching is commonly referred to *nascent* oxygen, because dry chlorine has no such effect; but for the term nascent we may now, perhaps, be justified in substituting the word *allotropic*, and refer the effects to the ozonic condition of oxygen.

The oxidation of the metallic sulphurets by ozone throws a curious light on the probable cause of the destruction of photographic drawings. If any sulphuret of silver be left in the finished drawing, the drawing is slowly bleached, and the sulphuret converted into sulphate of silver. In drawings which have been framed, the change is observed to commence on the internal margin, and slowly spread to the centre. There are many other remarkable chemical changes which will now probably receive a more satisfactory explanation than has been hitherto assigned to them.]—*London Med. Gaz.*, June 1851.

---

60. *On some Pathological Effects produced by Atmospherical Electricity.* By Prof. Schönbein. ("Proceedings" of Royal Med. Chirurg. Soc., June 24, 1851.)

After referring to the more obvious effects of electricity upon the organs of sensation, and more especially those of smell and taste, and stating his belief that the peculiar odour observed when an electrical discharge takes place, or in the neighbourhood of points from which electricity is passing, is not due to the electricity itself, but caused by the presence of a peculiar matter which he has named ozone, the author proceeded to lay before us the opinions held respecting it—viz., that either pure or atmospheric oxygen, when exposed to the action of electricity, is transformed into this odoriferous body, which he was at first inclined to consider a peculiar peroxide of hydrogen, but which other eminent chemists believe to be merely an allotropic modification of oxygen. With reference to its exact composition, he declines, however, to give a decided opinion. This body, whatever its actual nature may be, is a most powerful oxidizing agent, at ordinary temperatures, oxidizing silver, forming iodic acid from iodine, nitric acid from nitrogen; converting the acids ending in *ous* into those which end in *ic*, the salts which terminate in *ite* into those which end in *ate;* metallic sulphurets into sulphates. It decomposes the gaseous components of hydrogen, with sulphur, selenium, phosphorus, iodine, arsenic, and antimony, and exerts many other energetic chemical actions both on organic and inorganic substances. It has a strong electro-motive power similar to that of chlorine, bromine, and iodine; and lastly, it has certain physiological effects upon the animal system, similar to those of chlorine and bromine, acting powerfully as a poison, even in minute doses. Ozone is being constantly generated in the atmosphere by the electrical action going on. When in excess, it has a sensible effect upon the mucous membranes of those exposed to its influence, and its presence is indicated by starch containing the iodide of potassium being turned blue. The author has availed himself of this fact in the construction of his ozonometer, which consists of a box containing test-paper thus prepared, and a chromatic scale. He believes that certain catarrhal affections are produced by the presence of ozone in the atmosphere, and he has availed himself of the assistance of medical friends in ascertaining the co-existence of unusual prevalence of catarrh with what he terms his *blue days*, and he suggests that more extended observations are desirable for this purpose. The author then referred to the existence of poisonous miasmata in the atmosphere, which are generated by certain "purely chemical, or physical, or physiologically chemical actions," which take place within the earth, or its surface, in stagnant or running waters, or in the atmosphere itself. Of these poisonous gases or vapours, there are two

sorts which are antagonistic to and destroy each other. Of the first class, sulphuretted, and perhaps phosphuretted, hydrogen, alone are produced by natural causes, and these in such minute quantities that they do not, except in a few localities, exert any general influence upon animal life. Of the second class, there is one, namely ozone, which exists in appreciable quantities in the atmosphere. But the abundant source of gaseous matters is that which the decomposition of vegetable and animal substances affords. Some of these are well known, such as carbonic acid and ammonia; others are of unknown chemical nature, and though the absolute quantity of such deleterious matters may be small in comparison to the immense volume of the atmosphere, their accumulation would render the air unfit for the support of animal life, unless some agent were at work to neutralize or decompose them. The author states that the purification of the atmosphere which we attempt to effect on a small scale by chlorine fumigations, is accomplished in the great processes of nature by the agency of ozone, a task for which it is peculiarly fitted by its high oxidizing powers. He gives the details of some experiments upon air tainted by putrid flesh, which was purified by ozone disengaged by the action of moistened phosphorus. Ozone, which is formed in the atmosphere by the electrical discharges constantly going on, acts upon and decomposes the oxidizable miasmatic gaseous matters which contaminate it, and thus the atmosphere is preserved in a state fit for the support of animal life, and, at the same time, the ozone, which, if allowed to accumulate, would become deleterious, is in its turn neutralized or decomposed by the miasmata. During a thunder-storm large quantities of ozone are formed, and the author supposes that the unhealthy state of the atmosphere which exists in the hot season of the year may be caused by the accumulation of miasmata produced by animal decomposition; and that it is by the generation of ozone that thunder-storms purify the air. The author considers that there are probably certain states of the atmosphere in which the quantity of ozone does not bear a due proportion to the miasmata it has to act upon, and that under such circumstances it is that certain diseases—cholera, for instance—make their appearance. He is also of opinion that, in the winter, there is more atmospheric ozone than in summer, and that the higher strata of the atmosphere contain more than the lower; and as the generation of some diseases, such as the yellow fever, appears to be connected with certain seasons and geographical positions, he thinks that by an extended series of observations it might be ascertained whether these diseases bear any relation to the ozoniferous state of that portion of the atmosphere where they happen to occur. The paper concludes with a reference to experiments which prove that ozone produced by the action of electricity or by the agency of phosphorus is identical.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Wills' Hospital—Service of Dr. LITTEL—*Cases discharged from April 1st to July 1st*, 1851.

	Cured.	Relieved.
Acute conjunctivitis,	1	0
Chronic do.	3	0
Catarrhal do.	5	0
Strumous do.	9	0
Granular do.	12	1
Iritis,	9	0
Cataract,	1	0
Partial amaurosis,	3	2
Opacity of the cornea,	1	1
Ulcer of the cornea,	3	0
Corneitis,	3	0
Ophthalmia tarsi,	3	1
Injury of the eye,	1	0
Closure of the pupil—operation deferred.		
Adhesion of the lid,	0	1
Coxalgia,	0	1

Wills' Hospital Dispensary—cases treated:—

Acute conjunctivitis,	8	Tumour of the lids,	5
Chronic do.	21	Injury of the eye,	13
Strumous do.	26	Entropium,	3
Catarrhal do.	4	Partial amaurosis,	17
Granular do.	13	Fungus hæmatodes,	1
Purulent do.	2	Closure of the pupil,	2
Phlyctenular ophthalmia,	12	Neuralgia of the eye,	3
Pustular do.	5	Inflammation of lachrymal sac,	4
Rheumatic ophthalmia,	3	Obstruction of do	3
Ophthalmia tarsi,	14	Fistula lachrymalis,	1
Ulcer of the cornea,	13	Ptosis,	1
Particles of steel in cornea,	5	Pterygium,	3
Opacity of cornea,	9	Corneitis,	3
Cataract,	4	Staphyloma,	3
Iritis,	9	Diseases not ophthalmic,	9
		Total,	219

Constitutional Treatment.—In the management of *all* forms of ophthalmic disease, Dr. Littell makes it a primary object to attend to the general health of the patients, but especially in the management of the various forms of strumous ophthalmia, and bad cases of granular conjunctivitis. He proceeds, first of all, to restore to a healthy activity all disordered functions, and this

accomplished, he endeavours in strumous subjects to change the diathesis, and invigorate the system by free exercise in the open air, by a simple and nutritious diet, by the judicious use of the bath and by tonics, quinine and iron being preferred in most cases. In the treatment of those obstinate and intractable cases of chronic granular conjunctivitis, of which there are always so many in this hospital, he deems it all important to improve the general health and sustain the strength, while at the same time he employs such local astringent applications as are best adapted to each particular case, preferring, in using the nitrate of silver, generally the weaker solutions applied carefully to the inverted lids with a camel's hair pencil. The tonic which he prefers is quinine in connection with a generous diet and a moderate exercise in the grounds attached to the hospital, when the conditions of the eyes do not forbid too great an exposure to the light. (These patients are always exposed to as much light as they can bear without causing pain or irritation in the eye.) The cod-liver oil, so much used recently in the hospital, to correct the strumous diathesis and to improve the constitutional vigour in bad cases of granular lids, is not a favourite with Dr. L. He entertains the opinion that the results ascribed to this remedy are due to other causes—the discontinuance of irritating applications, the addition of a highly nutritive article to the ordinary meagre diet of a hospital, the season of the year, &c. &c.—and can be more readily obtained by less nauseous agents.

Iritis.—An unusual number of cases of iritis were treated in the hospital during this service of Dr. L. In the majority of the cases, the disease yielded readily to the usual plan of treatment, and when the cases came under treatment before the results of the disease had taken place, no permanent injury in any instance resulted to the eye. A few of the cases treated did not yield readily to the mercurial impression, and were only relieved after a protracted course of treatment, during which time other less efficient remedies were used as adjuvants to mercurials; the ultimate results in these more difficult cases were entirely satisfactory. It should be remarked here that it is an invariable rule in this hospital to keep the ext. of belladonna constantly painted on the brow and lids during the treatment of iritis, to obviate, if possible, a closure of the pupil. In the use of mercurials in the treatment of iritis, Dr. L. is extremely cautious; he finds that he can procure all the good effects of this essential remedy, while at the same time he avoids those injuries so often inflicted upon the constitution by its too free and indiscriminate use. He also finds that a careful perseverance in the use of mercurials, for a long time after active disease has subsided and left the pupil blocked up with lymph, does far more than is generally supposed to obviate the results of the iritic inflammation, and restore vision. This fact has been well illustrated recently in the hospital, in the person of a young married woman who was admitted in January last for the relief of the results of a syphilitic iritis which had run its course. When she came in, she was entirely blind, and in a miserably broken-down condition of the general health, and covered also with a syphilitic eruption. Dr. Parrish, who was then on service at the hospital, put her upon the use of the iodide of mercury, one grain three times daily, in combination with guaiac and lactucarium; this, in connection with a full tonic course, was continued for months, when the gums became a little swollen; as they did but two or three times, the mercurial was suspended for a day or two, and then resumed again. Her improvement was slow, but constant; the eruption faded, and the lymph gradually thinned away from the contracted pupil, and in February she could find her way about the ward; in March, she could distinguish objects without

much difficulty, and in April she could see to read large print. In June, when discharged, the pupil of the right eye was quite clear, and as large as that of a healthy eye in a good light. The left eye did not improve much; it is quite soft and flabby, and probably its internal tissues are in part disorganized.

Artificial Pupil.—Peter McCarty, an Irish labourer, æt. 30, of good constitution and fine health, was admitted to the hospital on the 10th of May last. One eye had been entirely destroyed and the other rendered sightless by an attack of inflammation which he suffered in the city of New Orleans. When he presented himself for admission at the hospital, the eye that remained had a dense opacity in the central portion of the cornea—the margin of the cornea was entirely clear. The pupillary margin of the iris for three-fourths of its lower circumference was adherent to the opaque spot; the upper fourth remained free, and left a minute opening through which the rays of light would pass when the lid was raised with the fingers. As the margin of the lid fell below this minute pupil, he was quite blind, when the lid was not raised up with the fingers, and even then he could not see distinctly enough to enable him to walk about with safety. Three attempts had been made by a surgeon in New Orleans to make an artificial opening through the iris, but without the slightest success, and he was given over to hopeless blindness; but, not satisfied to endure so hard a fate without another trial for relief, he determined to come to Philadelphia, and consult the surgeons at this hospital. He accordingly arrived here in May last, and Dr. L., not considering his case hopeless, admitted him, and in due time submitted him to the examination of his colleagues, who, after the usual consultation, concurred in the propriety of an operation. The eye being free from irritation, and the texture of the iris presenting a healthy appearance opposite that part of the inferior portion of the cornea which was transparent, Dr. L. determined to make an opening through the iris at that point. To accomplish this object, he introduced a small iris scalpel through the tissues of the eye about one line behind the iris, and carefully carried the point through it into the anterior chamber. This was attended with extreme difficulty, as the iris lay in close contact with the cornea, and there was therefore not space for the point of the scalpel in the anterior chamber; however, after prolonged and delicate efforts, the point of the instrument was finally carried through the iris, and onward between the iris and the cornea for two-thirds the width of the iris towards the inner canthus of the eye, the cutting edge of the knife turned so as not to wound the cornea. The scalpel was then withdrawn with a gentle pressure of the cutting edge against the iris, making, as it passed out, a free incision; the divided fibres retracted immediately, leaving a triangular opening as large as could be desired. No unpleasant symptoms followed the operation, and, in a few days after, the man was up and walking about the hospital and the yard, seeing his way distinctly. As the vision has remained the same since the operation in the early part of June until now, July 21st, it is inferred that the lens and its capsule were destroyed by the abortive operations in New Orleans. This man's vision, since the time he was out of bed after the operation until now, has been sufficient to enable him to do any kind of horticultural labour with the gardener, whom he has very industriously assisted since he has been able to see and to work. This case has a peculiar interest from the circumstance of its unpromising character in the outset, and from the complete success which followed a well-devised and skillfully executed operation.

Medullary Disease of the Eye.—Two cases of this formidable disease of the

eye have occurred in the Hospital Dispensary within the last two years. One has already proved fatal; the other is still under treatment. Andrew Galbrath, the patient first affected, a fine, healthy-appearing lad of six years, was brought to the hospital during the service of Dr. L., on the 9th day of April 1849, three weeks after the eye was first found to be diseased. The first defect noticed was an internal squint, and a partial failure of vision. When first presented at the hospital, the pupil was active and normal in size, but it had a brilliant appearance and amber colour. On looking through it into the interior of the eye, there was visible in the posterior part an adventitious mass of matter, consisting of thin distinct lobes, having the colour of yellowish lymph with a silvery lustre, and filling up almost one-fourth of the interior of the globe. There was still at this time a little strabismus, and some pain also in the temple and brow, with a slight redness of the conjunctiva. The pain and redness of the conjunctiva subsided after a moderate leeching, and did not again return until near the termination of the disease. The general health of the little patient seemed perfect, and continued so until the month before he died. Lugol's solution was ordered for him, gtt. v three times a day, and this he continued to take for five or six months. He was finally compelled to abandon this remedy, as the stomach would no longer tolerate it; no regular medical plan was adopted in its stead. The solution was resumed after a time, but the stomach continued to reject it, and it was finally left off entirely. While taking the solution, the disease remained stationary, and for a time seemed to recede; but, after it was abandoned, the mass in the interior of the eye began to increase slowly, pushing forward the lens against the iris, which ultimately became obliterated. In January, the mass had advanced to the cornea, and the whole globe was visibly enlarged; the sclerotica had become thinner, nodulated, and of a bluish-gray appearance. After this time the appearance of the eye underwent no further change; the cornea remained entire and transparent, and the lid was easily closed over it. In the early part of March, the general health, which had remained good, began to fail, and shortly after the vision in the other eye was lost, though the eye retained a healthy appearance, except, only, that the pupil remained dilated. Soon after this, he complained of pain in the head, became too feeble to walk about, lost his appetite, and inclined to be constantly on his back, pressing the back part of his head deep down in the pillow, moaning, and rolling from side to side; he was also wakeful, and extremely feverish and irritable. April the 1st, he had three slight convulsions, and in the evening of the same day he died. On examining the brain, a large oval tumour was found resting in the position of the chiasm of the optic nerves, involving the nerves of the diseased eye as far as the orbit, and that of the unaffected one for half that extent; posteriorly, it involved these nerves almost to the optic thalamus on the right side, and quite to it on the left; latterly and superiorly, it encroached on the anterior lobes of the cerebrum, and was greatly imbedded in them; the cerebral substance was softened where in contact with the tumour; the tumour was covered by the membranes of the brain, and probably originated in the substance of the optic nerve of the left side—the side of the diseased eye; it had a semi-solid consistence, was yellowish white and granular, and resembled tubercle when beginning to soften. The eye was not examined on account of the opposition of the parents. No disease was found in other portions of the brain.

Henry Coagan, the patient still under treatment, is seven years old, a native of the city; has a fair complexion, and a rather delicate constitution, though his general health seems good. The left eye is diseased, and

presents an appearance analogous to that of the other patient's eye when first seen; the only apparent difference consists in the uniform surface of the adventitious mass, it not appearing lobulated as in the other case. The vision is lost, but there is no pain, no redness, no dilatation of the pupil as yet, and no strabismus. He was first brought to the hospital on the 23d day of April last, and has been under treatment since then; he has been brought here now four times in all; the disease has, during this time, remained perfectly stationary; he has been kept steadily on the use of Lugol's solution and the syrup of the iodide of iron, three drops of the former and ten of the latter, given three times daily in the syrup of sarsaparilla.

A. F. MACINTYRE, *Resident Surgeon.*

WILLS' HOSPITAL, *July*, 1851.

Statistics of Mortality of Baltimore, Maryland, in 1850. By L. S. JOYNES, M. D., of Accomack, Virginia. [Extracted from a letter to the Editor.]

Having already furnished you with detailed statements concerning the mortality of the city of Baltimore, during a period of fourteen years, ending with 1849 (which statement was published in the *American Journal* for October, 1850), I will seize the present opportunity to add a word in reference to the mortality for the year 1850. I am chiefly induced to do so by the fact that the decennial census taken in that year enables us to compare the mortality with the population.

The population of Baltimore, in 1850, as given in a publication, believed to be authentic, was as follows:—

White population		141,440
Free coloured "	24,668	27,614
Slave "	2,946	
Total		169,054

Thus it appears that the total population, in the decennial period 1840–50, increased very nearly sixty-five per cent.; the increase of the white population was but little less than seventy-four per cent., and that of the black population nearly thirty per cent.

The mortality for the year 1850, as given in the Annual Report of the Board of Health, was in the

White population		3,725
Free coloured "	641	900
Slave "	259	
Total		4,625

Excluding the still-born (415 in number), the deaths amounted to 4,210.

From this it is evident that, notwithstanding the vast increase of population which the census exhibits, the increase of mortality has been still greater. The deaths in 1850 are more than double the number of those in 1840, and by referring to the tables contained in my paper above referred to, it will be found that this disproportionate mortality was already remarkable in the year 1849, and one or two years preceding. Consequently, the *ratio of mortality to the population*, which I formerly gave, does not hold good for these more fatal years. The ratio for 1850 (excluding the still-born) was 1 in 40.13 of the general population; whereas, in 1840, it was 1 in 50.13; and for the nine years 1836–44, as determined by calculation, 1 in 45.42.

The causes of this excess become evident on referring to the detailed statement of the causes of death, given in the Reports of the Board of Health. I have no design at present to trouble you with the details of the tables for

1850, but will merely state that the deaths from *diseases of the bowels* of the *zymotic class* exceed those of any former years, at least since the beginning of the period which I have made the subject of investigation. The total number of deaths from these diseases—cholera morbus, cholera infantum, diarrhœa, and dysentery—was 651. The only preceding year in which their fatality at all approaches this high number was 1849, when the aggregate was 539. In 1848, the next most fatal year from these diseases, it was but 314. The increased fatality of dysentery is especially remarkable. Thus we find that, in the thirteen years preceding 1849, the deaths from this disease varied from 7 to 46 annually. In 1849 they suddenly rose to 148, and in 1850 to 237. So the deaths from diarrhœa, which had never exceeded 15 in any one year, amounted to 69 in 1849, and 40 in 1850, and those from cholera morbus, of which the annual maximum had been 9, amounted in those years respectively to 32 and 27. The deaths from cholera infantum (amounting to 347 in 1850) exhibit an increase more nearly according with the annual increase of population.

The year 1850 also exhibits a great increase of deaths from *small-pox*. Since the years 1845 and 1846, when 225 persons died of that disease, comparatively few cases of the disease had occurred, the deaths in the three years following numbering 1, 4, and 19 respectively, to which may be added 5 deaths from varioloid and varicella. In 1850, the fatal cases of small-pox amounted to no less than 145, while 8 are set down to varioloid, and 3 to varicella, making 156 deaths due to this group of diseases.

If the excessive mortality from the zymotic diseases which have been mentioned was deducted from the sum total of deaths for the year 1850, it would leave the ratio of mortality for that year almost exactly the same with that which I formerly gave as the average rate for the city of Baltimore.

On Henry's Magnesia. By DAVID STEWART, M. D., of Baltimore.

The physician is frequently asked, "Why Henry's Magnesia differs from the magnesia of the shops?"

I have instituted a series of experiments, which I may hereafter publish in detail, in order to prove that one defect in many (if not all) of the magnesia that is now put up in bottles as a substitute for Henry's Magnesia, is the presence of an appreciable quantity of lime, and that the magnesia called "Apothecaries' Hall," and other varieties of English magnesia, contain a considerable proportion of lime, sometimes amounting to three per cent.

In making the comparison with Henry's, I dissolved ten grains of each sample in about half a fluidrachm of sulphuric acid (previously diluted to measure half an ounce); this solution of magnesia was poured into a test tube, and then mingled gradually with half an ounce of alcohol (35° Baumé): the beautiful needles of sulphate of lime appeared abundantly in almost every specimen, including some of the American imitations of Henry's.

I have repeated the experiments, using an excess of acetic acid as the solvent, and oxalic acid as the reagent: the precipitate formed by oxalic acid under these circumstances was well characterized as oxalate of lime under the microscope, by the beautiful octohedra deposited from the dilute *acid* solution.

I should prefer the former test, and would suggest that it should be substituted for this, under the article "Magnesia," in our National Pharmacopœia, as Henry's will deposit a *few* crystals of oxalate of lime: and it is not expected that magnesia *for medicinal purposes* should be "*chemically* pure."

DOMESTIC SUMMARY.

Experiment of introducing Cancerous Matter beneath the Integument of a Frog.—Dr. Leidy stated to the Academy of Natural Sciences that he had repeated the experiment of introducing cancerous matter beneath the integument of a frog, which was first announced to the Academy, May 6th.

The cancerous matter was a fragment of encephaloid, taken from a female after death, by Dr. Henry H. Smith. It was almost as soft as cerebral substance. Beneath the microscope it exhibited a structure of very delicate organic cells, containing numerous granules and one or two nuclei.

A portion three-fourths of an inch long, by one-fourth of an inch broad, was inserted under the skin of the back of a frog, on May 8th, 34 hours after its removal from the body of the female. This frog, still living, Dr. L. exhibited to the members, and by an incision through the integument, presented to view the fragment of cancer, which had been introduced, and which had not only formed a vascular attachment to the integument, but for one-half itself was of a fine red colour from the net-work of capillaries which had become developed within it. The fragment had not increased in size. A number of its structural cells remained unchanged, but others had broken down into granular masses.

Dr. L. observed, the experiment not only proved the independent vitality of tissues, which was generally admitted, but also rendered it exceedingly probable that cancer was inoculable, for as, in the experiments, the cancerous fragments continued to live when introduced into cold-blooded animals, they would probably not only continue to live when introduced into warm-blooded animals, but would grow or increase in size.—*Proceedings of the Academy of Natural Sciences*, Phila., June 17, 1851.

—

New Method of preventing Fats and Fixed Oils from becoming Rancid.—Dr. C. W. Wright, of Cincinnati, states (*Western Lancet*, Sept., 1851) that one of the early settlers of Ohio mentioned to him the following curious manner in which the Indians preserved bear's fat from becoming rancid: In the early part of winter, the fat is removed from the body of the animal and subjected to the *trying-out* process, as it is termed; that is, it is subjected to a degree of heat sufficient to coagulate and separate the azotized matter which subsides to the bottom of the vessel, and the oil is drained off. After this operation is completed, it is melted again with the bark of the slippery elm tree (*ulmus fulva*), finely divided, which may be used either in the fresh or dry state. The proportion is about one drachm of the bark to the pound of fat. When these substances are heated together for a few minutes, the bark shrinks and gradually subsides, after which the fat is strained off and put aside for use.

The bark communicates an odour to the fat that is hardly to be distinguished from that of the kernel of the hickory nut.

Thinking this might be turned to account in the preservation of the fatty matters, Dr. W. subjected many of them to experiment, and in every instance the result was alike successful. One specimen of butter (an article which, it is well known, becomes rancid sooner than any other kind of fat), prepared in this way more than a year ago, is as sweet and free from disagreeable odour as on the day it was made, having been exposed all this time to the atmosphere and changes of temperature.

Hog's lard may be preserved in the same manner.

This fact will be of much importance in the preparation of cerates and ointments, which can be thus protected from rancidity.

—

On a Peculiar Appearance of the Tongue in Malarial Diseases.—Dr. Thos. C. Osborne, of Erie, Ala., states (*Western Journ. Med. and Surg.*, Aug. 1851) that he has remarked an appearance of the tongue which reveals the presence of malaria in the system, in time to enable the physician to remove it before it has exerted any seriously deleterious influence.

"For several years past," he says, "my attention has been attracted to this peculiar condition of the tongue, which, from its invariable position and presence

in the diseases and predispositions generated by miasma, may be appropriately denominated the *malarial margin*. As the name imports, it is an essential departure from the normal aspect of the edge, constituting a distinct lateral boundary of the tongue, occupying more or less surface according to the charge of infection in the system. Ordinarily, the colour amounts only to a very faint bluish tinge, which is liable to be lost, or merged in the various tints imparted to the tongue by various diseases. The most fixed condition of this symptom is an appearance of indentation or crimpling transversely, which is apparently confined to the subjacent tissue, while the superficial tegument is moist, smooth, and transparent. In a word, it seems to be a continuation or encroachment of the inferior surface upon the superior and lateral borders of the tongue, greater as we approach the root of that organ.

"My opportunities for noting this appearance of the tongue have been ample during several years, among a considerable population, composed of the white, black, and mixed races permanently residing upon the banks of the Warrior River (in sandy as well as the prairie regions), and in many individuals from other and different sections of this and the surrounding states; and I can truly say that in no instance has it ever failed to inform me correctly of the agency which the remote cause of fever had begun to exert in each individual case. After being once recognized, it is not easily mistaken, and from pointing it out so frequently to non-professional persons of my acquaintance, many of them have become as thoroughly convinced of its significance as myself, and call it, very properly, the "fever tongue." I have frequently, upon seeing a well-defined instance of the malarial margin, predicted fever within a month, and although the individual would be disposed to smile incredulously, and boast of excellent health, the result has generally created in their minds and bodies a different sensation.

"The fidelity of this symptom to the source of its origin is, under all circumstances, fully equal to the importance which I have attached to it. In a considerable number of cases of the different forms of dropsy, neuralgia, and inflammation, it has alone enabled me to reach a correct diagnosis, when every other symptom seemed to deny the agency of malaria in the case. Wherever seen, I have invariably assumed that there existed a tendency to intermittent disease, and upon watching the progress of the case, have as invariably detected this condition. In numerous cases of pulmonary inflammation, where the fever seemed continued, the cough unabated, the oppressive respiration persistent, and the pulse unvarying in its activity, the physical signs have designated with great accuracy the periods of repose and excitement in the course of the disease. In the gastric and intestinal phlogoses, again, whether as causes or consequences of fever, if this peculiar impression is seen upon the tongue, no apprehension need be felt in the administration of quinine, however malignant the case may appear. Here also intermission, varying in degree according to the severity of the disease, is always present, and, generally speaking, the shorter the period of repose the greater the quantity of medicine required, and *vice versâ*. I have not hesitated, in many cases, where the disease was marching rapidly to a fatal termination, to prescribe one, two, and even three drachms of sulphate of quinine at a dose, to be repeated according to the urgency of the indications. Gastro-enteritis, as a complication in the autumnal fevers of our section, is by no means uncommon. On the contrary, in the limits of my practice it exists in a majority of cases. At the present time there prevails on both sides of the Warrior an epidemic diarrhœa, as symptomatic of mucous irritation, which, in a number of instances, resists all the usual remedies given in such cases, but yields readily to repeated doses of quinine, and the daily use of the cold dash. The most active of these cases present unmistakable evidences of gastro-intestinal inflammation of a high grade; but in no instance have I failed, on a close examination, to recognize a quotidian or tertian form of intermittent, and in no instance has the malarial margin been absent from the tongue.

"My tabular report of the diseases of the last month exhibits diarrhœa as the prevailing type of disease, and by reference to that paper it will be seen that there have occurred to me twenty-five cases, in individuals varying in age from three months to sixty years; as respects the treatment, the whole number may be divided as follows, viz.:—

"Of those between the ages of three months and ten years, six required quinine and the cold bath, while five yielded to the administration of opiates and astringents; and of those over ten years, twelve demanded quinine and the cold dash, while only two yielded to opiates and astringents.

"Some of these cases were of an alarming character, and my conviction is that their favourable termination is due to the use of quinine, which I was at first led to administer by the malarial tongue. During the last four years, our country has been visited by an unquestionable form of typhoid fever, and in not one of the cases of this disease which I have seen, has the tongue exhibited the malarial border, but has appeared as if scalded in patches. But the semblance of typhoid fever is assumed by many cases of the autumnal disease, in which, but for this symptom, much apprehension might be entertained, and much valuable time lost to the physician in the treatment, for it is well known that quinine is actually injurious in all stages of the typhoid fever, while in those cases merely wearing its livery, that remedy is not only useful, but essentially necessary to the cure of the disease.

"If the malarial margin were useful only in unmasking this form of disease, its value would be inestimable; but when it points out with equal certainty all other varieties of disease in which miasma exerts a predisposing agency, it becomes a phenomenon of the greatest importance.

"It is not easy to exaggerate the value of a sign by which we detect the operation of the poison in its inception, and are conducted to the true method of suppressing it."

Femoral Aneurism cured by Compression.—Dr. H. N. Bennett, of Bethel, Ct., relates (*New York Journ. Med.*, July 1851) the following interesting case:—

"Thomas J. Elwell, a blacksmith, 30 years of age, during the winter of 1842–3, suffered from pain about the knee-joint, which he supposed to be of a rheumatic character, and applied only domestic remedies for its relief. After a walk of twenty-two miles over frozen ground, the pain and lameness of the knee increased to such a degree, that he consulted me in reference to it. Upon examination, I immediately detected a pulsating tumour in the popliteal region, nearly the size of a hen's egg, and having all the characteristics of aneurism. This was in the month of March, 1843. At the end of five or six weeks from this date, the tumour had increased considerably in size, so much, that I advised my patient to submit to ligation of the femoral artery at once, as the nature of the difficulty could not be doubtful, and as I had at that time little confidence in any other mode of treatment. Feeling unwilling to endure a surgical operation, he soon went to New York for further advice. He consulted Drs. Mott and Rogers, who both gave him the same opinion which I had done, and urged him to remain at the New-York Hospital for operation. He then passed over to Staten Island on a visit to his friends, where he consulted some physician, whose name I cannot recall, who also pronounced it a case of aneurism, but recommended him to try the effects of pressure upon the tumour. He returned home, and commenced the application of pressure, *himself*, by bandaging the limb from the toes to the knee, and placing a compress of folded cloth directly upon the pulsating tumour. He persisted in this course for two or three months without the least benefit, when he determined to substitute a firmer compress. Instead of folds of cloth, folds of *sheet-lead* formed the nucleus of his compress, which was applied in the same manner as before. I called upon him occasionally to watch the progress of his treatment, and, after the end of ten days after the application of the lead compress, I found him suffering much pain in the knee-joint, from the severe pressure which he had made, but no diminution in the size of the tumour or the force of the pulsations, the latter being readily felt through the compresses when applied with all the force which he could endure. I advised him to discontinue what I considered a hazardous proceeding, and to abbreviate his sufferings by submitting to the usual operation. Notwithstanding, being a man of very strong resolution, he determined to pursue this course still longer, and abide the issue. At this time, however, he threw aside the lead compress, and filled its place with *a ball of caoutchouc*, which he bound upon the tumour with all the force he could endure. Not long after, perhaps two or three weeks, I called again to see him,

and was much surprised, upon examining the limb (which he exhibited with no little triumph), to find the tumour much diminished in size, and the *pulsation gone.* I could also distinctly feel several arteries pulsating about the knee-joint, evincing an increased development of the anastomosing branches of the femoral. From this time, the tumour in the popliteal space was gradually absorbed, and at the end of a few months had entirely disappeared."

Case of Hermaphroditism.—Dr. JNO. NEILL communicated to the College of Physicians the following curious example of hermaphroditism, in a black brought to the anatomical rooms of the University of Pennsylvania:—

She dressed as a female, and was apparently twenty-five or thirty years of age, judging by her teeth and general appearance. Very little information could be obtained concerning her habits and propensities. She resided among the degraded blacks in the lower portion of the city, and died from drunkenness and exposure, according to the verdict of the coroner's jury.

From a superficial view of the pelvis and genitals, almost any one would have pronounced the subject to have been a *hypospadic male,* notwithstanding the large mammæ and the want of hair upon the face.

The breadth of the shoulders compared with the narrowness of the hips, and the form and development of the limbs would, alone considered, have indicated the male sex.

The representative penis was five inches in length, and one inch in diameter; and the skin, prepuce, glans, corona, fossa navicularis, and orifice of the urethra presented an appearance like that of a penis. But, by lifting up or turning aside the penis, it was found that the fossa navicularis was split, and that the urethra was wanting. In the place of the urethra there was a groove reaching from the glans penis to an oblique opening in the perineum. The cuticle lining the groove was thin and shining; it was also deficient in pigmentary cells. On each side of this groove there was a fold of skin commencing near the middle of the side of the penis, and stretching around the perineal orifice. The interior of this fold showed it to be the analogue of the nymphæ or corpus spongiosum.

The perineal opening was the commencement of a passage common to the bladder and vagina, and its diameter was equal to that of a common-sized catheter, although the orifice appeared much larger, owing to its obliquity.

The scrotum existed upon one side only. It was corrugated with transverse rugæ, and covered as usual with hairs and sebaceous follicles. To the touch it gave the idea that it contained two hard bodies.

Internal Organs.—These were completely female, though not perfectly developed. The dissection was commenced by opening the abdominal cavity, and the contents of the pelvis were examined in connection with the external parts.

The bladder was natural in position and size. There was no prostate, and the urethra was about one inch in length, and opened into the perineal passage.

The uterus was small, but symmetrical; to its sides were attached the broad ligament, holding it in its proper relation to the rectum and bladder.

The Fallopian tube of the right side had no free and fimbriated extremity, but terminated in a sac which was adherent to the ovary.

The ovaries were small, spherical, and corrugated; a section exhibited the usual fibrous tissue and vesicles.

The right round ligament of the uterus was exceedingly thick, and appeared to be muscular; but, upon examination with the microscope, it was found to be composed of white and yellow fibrous tissue. It reached to the bottom of the scrotum, where it was firmly attached.

The *scrotum* contained an irreducible omental hernia, probably congenital. The hernial sac contained also a small hardened mass, which was supposed to be a representative testicle, but it contained no true glandular structure or excretory tube. The vagina was of the proper length, but extremely narrow, especially where it approached the perineal orifice.

The above case would be classified under the head of "*spurious hermaphroditism*" in the female, according to Professor Simpson's article on this subject in the *Cyclopædia of Anatomy and Physiology.*—*Quarterly Summary of Transactions,* N. S., Vol. I. No. 3.

INDEX.

A.

Abbot, emphysema of face and neck, 81.
Abdomen, punctured wound of, 235.
Abscess of mons veneris, 86.
——— head of tibia, 118.
Adams, injury of shoulder-joint, 266.
African cranium, temporal ridges of, 278.
Air in liver, 485.
Albuminuria and amaurosis, connection between, 274.
Alley, poisoning by strawberries, 368.
Amaurosis, connection of with granular degeneration of kidneys, and protrusion of eyeball, 274.
American Medical Association, 282.
Ammonia, oxidation of in human body, 213.
Amnesia, 281.
Amputation, cures of, 313.
——— at shoulder-joint, 370.
Anæsthetic agents in surgical practice, 488.
Anæsthetics, local, 474.
Anasarca in disease of the heart, 481.
Aneurism treated by compression, 197, 228, 278, 500, 501, 557.
——— of arch of aorta, 75.
Animal magnetism, 434.
Antiseptics, 473.
Aorta, aneurism of arch of, 75.
Apoplexy, pathological appearances in, 266.
——— and softening of the brain, 51.
Appendix vermiformis, gangrene of, 369.
Aran, local anæsthetics, 474.
Arneth, obstetric practice of Vienna Lying-in Hospital, 513.
Arsenic, regulation act for sale of, 534.
——— cases of poisoning by, 262.
———, death from external application of, 259.
Articulation, loss of power of, 66.
Astragalus, excision of, 512.
Atropine, preparation of by chloroform, 214.
Augend, antiseptics, 473.

B.

Baltimore, statistics of mortality, 552.
Baly, absence of pericardial sac, 471.
Barclay, statistical report on diseases of the heart, 480.
Barker, difficulty in diagnosis of pleuritic effusions, 482.
Baskin, nausea and vomiting as a sign of cardiac polypus, 404.
Beale, laws of health, 453.
Beales, cases of ovariotomy, 511.
Bell, treatment of erysipelas by muriated tincture of iron, 482.
Bellingham, popliteal aneurism treated by compression, 500.
Benjamin, absence of sternum, 209.
Bennett, pathological appearances in strangulation, &c., 266.
———, femoral aneurism cured by compression, 557.
Bernard, recent discoveries in physiology, 30, 337.
——— and Pelouze on Woorara poison, 214.
Bethune, spontaneous reclination of lens, 83.
———, abscess of mons veneris, 86.
Bigelow, loss of power of articulation, 66.
Bird on Urinary Deposits, 447.
Bladder, rupture of, 78.
Boling, fatal effects of tartar emetic in pneumonia, 330.
Bonnet, extirpation of neuroma without injury to nerve, 238.
Bowditch, enlargement of liver and spleen, 72.
Brain, softening of, 51.
Bright's disease of kidney, 373.
Bromine, as a toxicological agent, 540.
Brown-Sequard, persistence of vital properties in limbs in a state of cadaveric rigidity, 472.
Bruecke, new muscular system in mucous membrane of stomach, 206.
Burnett, microscope and renal affections, 373.
———, tissue and its retrograde metamorphosis, 22.
Butcher, treatment of stricture of urethra with gum-elastic catheters, 239.
———, dislocation of clavicle downwards, 244.
———, traumatic tetanus treated by chloroform, 498.

C.

Cabot, rupture of uterus, 69.
———, keloides in a child, 71.
———, urticaria from hyoscyamus, 369.
Cæcum, ulceration of, 65.
Calomel, changes which it undergoes in the intestinal canal, 539.
Cancerous matter, introduction of under integument of frog, 555.
Cane, tracheotomy in epilepsy, 484.
Cardiac polypus, nausea and vomiting as a sign of, 404.
Carpenter's Principles of Physiology, 448.

Carriere, climate of Italy, review of, 141.
Caspar, some points of medical jurisprudence, 533.
Chassaignac, serious hemorrhage from excision of tonsils, 511.
Chloric ether as a disinfecting agent, 86.
Chloroform, fatal effects from, 271.
———— in gonorrhœa, 249.
———— in traumatic tetanus, 498.
————, topical application of, 112.
Chomel, anasarca in disease of the heart, 481.
Chylous urine, 210.
Clavicle, dislocation of downwards, 244.
Climate of Italy, 141.
Coale, aneurism of arch of aorta, 75.
——, colic simulating pleurisy, 67.
——, extensive mammary inflammation, 86.
——, gout, 75.
——, hydrocephalus, 364.
Cod-liver oil, supposed cases of phthisis treated with, 88.
———— oil in gaol cachexia, 483.
———— oil in scrofulous affections, 276.
Colic simulating pleurisy, 67.
Collodion in ingrowing nail, 499.
———— to prevent pitting in variola, 66.
Collyria, Jacob on, 249.
Compression in aneurism, 197, 228, 278, 500, 501, 557.
———— of skull of infant during birth, 254.
Cooking and preserving meat, 211.
Coste, gestation, 265.
Craigie, general and pathological anatomy, 463.
Creasote in diarrhœa, 227.
Crisp, kousso in tænia, 484.
Croup, membranous, 74, 85.
Crystalline lens, spontaneous reclination, 83.
———— dislocation of, 84.
Cummins, stricture of œsophagus, 409.
Curling, Diseases of Rectum, 468.

D.

Dandelion, mode of preparing juice of, 474.
Dartnell, femoral aneurism, 228.
Davis, History of Medical Education, 451.
Debrou, congenital obliteration of vagina and neck of uterus, 238.
Delivery, rapid, 259.
Diarrhœa as a symptom of menstruation, 257.
————, creasote in, 227.
Diaphragmatic hernia, 512.
Didama, poisoning with oxalic acid, 532.
Disinfecting powers of chloric ether, 86.
Dislocation of clavicle downwards, 244.
———— of crystalline lens, 84.
———— of shoulder-joint, post-mortem appearances, 246.
Donaldson, Bernard's recent discoveries in physiology, 30, 337.
Donovan, mode of preparing juice of dandelion, 475.
Durkee, contributions to practical dermatology, 100.
————, syphilitic ulcer, and syphilitic tubercular eruption, 371.
Dysentery, pathology of epidemic, 305.
———— chronic, 366, 367.

E.

Ear, affections of which produce disease of the brain, 499.
Eclampsia nutans, 487.
Eczema impetiginodes, 100.
———— mercurialis, 100.
Electricity, some pathological effects of, 547.
Elkington, four cases of ovariotomy, 508.
Ely, supposed cases of phthisis treated with cod-liver oil, 88.
Emphysema of face, neck, &c., during labour, 81.
Epilepsy, tracheotomy in, 484.
Erysipelas, contagiousness of, 78.
————, constitutional origin and treatment of, 225.
————, treatment of by muriated tincture of iron, 482.
Eustachian valve, uses of, 96.
Exanthem, new epidemic, 486.

F.

Faber, eclampsia nutans, 487.
Faraday on ozone, 543.
Fats, method of preventing their becoming rancid, 555.
Femoral aneurism, 227, 228.
Femur, intracapsular fracture of neck, 68.
Field, punctured wound of abdomen, 235.
Fife, fungoid tumour of orbit, 253.
——, melanotic tumour of orbit, 254.
Fleming, application of anæsthetic agents to surgical purposes, 488.
Fracture, intracapsular of neck of femur, 68.
Fractured vertebræ, 68.
Fragilitas ossium, 248.
Freney, strangulation in utero, 261.
Frick, pathology of epidemic dysentery, 305.
Froriep on electro-magnetism as a therapeutical agent, 470.
Fungoid tumour of orbit, 253.
Funis umbilicalis, immediate division of, 82.

G.

Galvanic cataplasms, 477.
Gaol cachexia, cod-liver oil in, 483.
Gestation, 265.
Gonorrhœa, chloroform in, 269.
Gout, cure of, 75.
Gratiolet and Cloez, poisonous properties of milky humour secreted by cutaneous pustules of toad, 532.
Gray, otorrhœa, 364.
Gregory, protective power of vaccination, 219.
———— on Animal Magnetism, 434.
———— on eruptive fevers, 455.
Gross, diseases of bladder and urinary organs, 415.
Guersant, ovary removed for a labial cyst, 511.
Guthrie, treatment of strictures of the urethra, 507.
Guy, value of vaccination, 215.

H.

Hall, on threatening of apoplexy and paralysis, 171.
Halpin, ligature of external iliac artery, 230.
Hanging, pathological appearances in, 266.

Hays, connection of amaurosis with albuminaria and protrusion of eye ball, 274.
—— cod-liver oil in scrofulous affections, 276.
Hayward, cases of vesico-vaginal fistula, 196.
Hearing, exaltation of, in paralysis of facial nerve, 225.
Heart, statistical report on diseases of, 480.
—— anasarca in diseases of, 481.
Henry's magnesia, 554.
Hermaphroditism, 558.
Hernia, operation without opening sac, 231.
Hewitt, dissection of a case of popliteal aneurism treated by compression, 505.
Hildreth, chloric ether as a disinfecting agent, 86.
Hilton, popliteal aneurism, treated by pressure, ligature of artery, 503.
Hip-joint, amputation at, 313.
Hoffman, diminution of weight in new-born infants, 533.
Homans, membranous croup, 74.
Homeria collina, poisonous properties of, 536.
Hun, amnesia, 281.
Hydrocephalus, 364.
Hyoscyamus, urticaria from, 369.
Hypospadias, 79.

I.

Internal iliac, ligature of, 227.
Iris, wounds of, 370.
Italy, Carriere on climate of, 141.

J.

Jacob on collyria, 249.
Jones, chylous urine, 210.
——, oxidation of ammonia in the human body, 213.
Joynes' statistics of mortality of Baltimore, 553.

K.

Keloides in a child, 71.
Kesteven, creasote in diarrhœa, 227.
Kobelt, parovarium of female, 209.
Kousso in tænia, 484.

L.

Labour, emphysema during, 81.
Lacerta salamandra, poisonous properties of milky humour secreted by cutaneous pustules of, 532.
Landouzy, exaltation of hearing in paralysis of facial nerve, 225.
Larynx, polypus of, 227.
Lassaigne, experiments on pancreatic fluid, 207, 208.
Lawrence, therapeutical application of electro-magnetism, 470.
——, popliteal aneurism treated by compression, ligature of femoral artery, 501.
Laycock, new epidemic exanthem, 486.
Lead, action of on water, 540.
Lee, inflammation of veins, 484.
Leidy, introduction of cancerous matter beneath integument of frog, 555.
Liebig, cooking and preserving meat, 211.
Ligature, internal iliac, 227.
—— external iliac, 230.
Linton, outlines of general pathology, 454.
Liver, air in, 485.
—— and spleen, enlargement and disease of, 72.

M.

Maclise's Surgical Anatomy, 445.
Magnesia, Henry's, 554.
Malarial diseases, peculiar appearance of tongue in, 555.
Mammary inflammation, 86.
May, cases of amputation, 313.
McClintock, causes and treatment of secondary hemorrhage after parturition, 529.
McCready, rapid delivery, 259.
—— death from external application of arsenic, 256.
McIntyre, report from Wills' Hospital, 273, 549.
McSherry, surgical cases, 118.
Meat, cooking and preserving, 211.
Medical colleges, statistics of, 283.
Medical evidence in favour of and at the request of prisoner, 260.
Melanotic tumour of orbit, 254.
Membranous croup, 74, 85.
Menstruation, diarrhœa as a symptom of, 257.
Meynier, collodion in ingrowing nail, 499.
Moir, mode of inducing premature labour, 516.
——, epidemics of puerperal fever, 518, 521.
Molluscous tumour in external ear, 486.
Molluscum, 396.
Morland, extracts from records of Boston Society for Medical Improvement, 65, 364.
Mucous membrane of stomach and intestines, new muscular system in, 206.
Muriated tincture of iron in erysipelas, 482.
Muscular system, new, in mucous membrane of stomach and intestines, 206.

N.

Nail, collodion in ingrowing, 499.
Neill, temporal ridges of African cranium, 278.
——, hermaphroditism, 558.
Neuroma, extirpation without injury to nerve, 238.
Nevins, action of lead on water, 540.
New-born infants, diminution of weight in, 533.
Nicotine, poisoning by, 536.

O.

Œdema of glottis, tracheotomy in, 236.
Oettinger, changes which calomel undergoes in intestinal canal, 539.
Œsophagus, stricture of, 409.
Operative Surgery, review of Skey's, 121.
Orbit, fungoid tumour of, 253.
——, melanotic tumour of, 254
Osborne, peculiar appearance of tongue in malarial diseases, 555.
Otorrhœa, twenty years' duration, 364.
Ovarian tumour, 365.
Ovariotomy, 503, 511.

Ovary removed by mistake for a labial cyst, 511.
Oxalic acid, poisoning with, 532.
Ozone, Faraday on, 543.

P.

Paget, popliteal aneurism treated by pressure, 502.
Pancreatic fluid, experiments on, 207, 208.
Pappe, poisonous properties of Homeria collina, 536.
Paralysis, electro-magnetism in, 470.
Parker, oil of turpentine in excessive dose, 79.
Parkman, malignant disease of testicle, 84.
Parovarium of female, the analogue of epididymis in the male, 209.
Pauli, polypus of larynx, 227.
Peddie, contagiousness of puerperal fever, 528.
Pelvis, fracture of, with rupture of bladder, 78.
Pennsylvania State Medical Society, 283, 449.
Pericardial sac, absence of, 471.
Pharmacopœia of the United States, 201.
Phthisis, arrest of, 478.
Physiology, Bernard's discoveries in, 20, 337.
Piorry, air in liver, 485.
Poisoning by strychnine, 534.
——— by strawberries, 368.
——— by Scheele's green, 535.
——— by nicotine, 536.
———, statistics of, 534.
Poisonous properties of milky humour secreted by cutaneous pustules of common toad, 532.
Poisons, mineral, in nervous system, 535.
Polypus of larynx, 227.
Popliteal aneurism treated by compression, 278, 500, 501, 502, 503, 504, 505.
Pneumonia, fatal effects of tartar emetic in, 330.
———, urine in, 224.
Premature labour, mode of inducing, 516, 517.
Pruritus, treatment of, 226.
Puerperal fever, epidemics of, 518.
———, contagiousness of, 518, 521, 521.

Q.

Quain, arrest of phthisis, 478.

R.

Rabourdin, preparation of atropin by chloroform, 214.
Radcliffe, Philosophy of Vital Motion, 465.
Randolph, uses of Eustachian valve, 96.
Rape, 260, 261.
Rauch, topical application of chloroform, 112.
Récamier, galvanic cataplasms of, 477.
Rectum, diseases of, 468.
Redtenbacher, urine in pneumonia, 224.
Rheumatism, electro-magnetism in, 479.
Roberton, Diseases of Women, and Midwifery, notice of, 179.
Robin, antiseptics, 473.
Roe, fatal effects of chloroform, 271.
Rose, cod-liver oil in gaol cachexia, 683.
Roucher, presence of mineral poisons in nervous system, 535.

S.

Saunders, diffused femoral aneurism, 227.
Schönbein, some pathological effects of atmospheric electricity, 547.
Secondary hemorrhage after parturition, causes and treatment of, 529.
Shattuck, tuberculous diseases of mesenteric glands, lungs, liver, spleen, 80, 81.
———, tuberculous disease, 85.
———, chronic dysentery, 366.
Shoulder-joint, injury of, 245.
———, amputation at, 327, 370.
Simpson, induction of premature labour, 517.
———, contagiousness of puerperal fever, 521.
Skey's Operative Surgery, review of, 121.
——— tourniquet, 245.
Skull of infant, compression of, during birth, 254.
Small-pox after vaccination, 218.
———, collodion to prevent pitting, 66.
——— in pregnant female, disease not communicated to child, 77.
Smith, congenital dislocation of head of radius forwards, 242.
———, fragilitas ossium, 248.
———, fatal case of inversion of uterus with attached placenta, 255.
———, molluscum, 396.
Statistics of medical schools, 283.
Sternum, absence of, 209.
Stewart, small-pox after a third vaccination, 218.
———, Henry's magnesia, 554.
Storer, ulceration of cæcum, 65.
———, collodion, to prevent pitting in variola, 66.
———, variola in pregnant female, disease not communicated to child, 77.
———, contagiousness of erysipelas, 78.
———, immediate division of funis in connection with sudden death of the newly-born, 82.
Strangulation in utero, 261.
———, pathological appearances in, 266.
Strawberries, poisoning by, 368.
Stricture of urethra treated by gum-elastic catheter, 239.
Strictures of urethra, treatment of, 507.
Strychnine, poisoning by, 534.
Swan, separate course of sensation, volition, and the involuntary power, 205.
Syphilitic ulcer and tubercular eruption, 371.

T.

Tænia, kousso in, 484.
Tannin as an antidote to strychnine, 534.
Tartar emetic, fatal effects of in pneumonia, 330.
Tartarized antimony in poisoning by arsenic, 262.
Temporal ridges of African cranium, 278.
Testicle retained in groin, 69.
———, malignant disease of, 84.

Testis, removal of diseased, 119.
Thayer, apoplexy and softening of the brain, 51.
Thore, excision of astragalus for fracture and dislocation of that bone, 512.
Tilt, diarrhœa as a symptom of menstruation, 257.
——, galvanic cataplasms, 477.
Tissue and its retrograde metamorphosis, 22.
Toad, poisonous properties of milky humour secreted by cutaneous pustules of, 532.
Tongue, peculiar appearances of, in malarial diseases, 555.
Tonsils, serious hemorrhage from incision of, 511.
Tournie, treatment of pruritus, 226.
Tourniquet, Skey's, 245.
Townsend, membranous croup, 85.
————, fractured vertebræ, 68.
Toynbee, effects of molluscous tumours in external auditory meatus, 485.
————, pathology of diseases of the ear with previous disease of brain, 499.
Tracheotomy in œdema of glottis, 236.
———— in epilepsy, 484.
Traill, poisoning by Scheele's green, 535.
Traumatic tetanus treated by chloroform, 498.
Tuberculous disease, 85.
———————— of mesenteric glands, lungs, liver, spleen, &c., 80, 81.
Tufnell, treatment of aneurism by compression, 197.
Turpentine in excessive doses, 79.

U.

Urethra, treatment of strictures of, 507.
————————————, with gum-elastic catheters, 239.
Urinary Deposits, Bird on, 447.
Urine in pneumonia, 224.
Urticaria produced by hyoscyamus, 369.
Uterus, absence of, 209.
——, congenital obliteration of mouth of, 238.
——, fatal case of inversion of, 255.
——, rupture of, 69.

V.

Vaccination, protective power of, 219.
————, small-pox after, 218.
Vaccination, value of, 215.
Vagina, congenital obliteration of, 238
——, occlusion of, relieved by operation, 13.
Veins, inflammation of, 484.
Venot, chloroform in gonorrhœa, 249.
Vertebræ, fractured, 68.
Vesico-vaginal fistula, 196.
Vienna Lying-in Hospital, practice of, 513.
Vital Motion, Philosophy of, 465.
—— properties in limbs in a state of cadaveric rigidity, 472.

W.

Walsh, erysipelas, 225.
Ward, compression of the skull of infant during birth, 254.
——, popliteal aneurism treated by pressure, 504.
Ware, ovarian tumour, 365.
Warren, amputation of shoulder-joint, 370.
————, fracture of pelvis and rupture of bladder, 78.
————, gangrene of appendix vermiformis, 369.
————, intracapsular fracture of cervix femoris, 88.
————, occlusion of vagina relieved by operation, 13.
————, testicle retained in groin, 69.
Webster, small-pox after vaccination, 218.
Whistler, tracheotomy in œdema of glottis, 236.
Williams, dislocation of lens, 84.
————, hypospadias, 79.
————, wounds of iris, 370.
Wills' Hospital, clinical report, 273, 549.
Women, diseases of, 179.
Wood, suits for malpractice, 43.
——, popliteal aneurism cured by compression, 278.
——, cod-liver oil in phthisis, 276.
Woorara poison, 214.
Wounding, 269.
Wright, method of preventing fat becoming rancid, 555.
Wurtz, bromine as a toxicological agent, 540.
Wythes' Microscopist, 464.

Z.

Ziehl, absence of uterus, 209.

CATALOGUE

OF

MEDICAL AND SURGICAL WORKS,

PUBLISHED BY

BLANCHARD & LEA,

PHILADELPHIA.

OCTOBER, 1851.

FOR SALE BY ALL BOOKSELLERS.

TO THE MEDICAL PROFESSION.

The Subscribers subjoin a list of their publications in medical and other sciences, to which they would invite the attention of the Profession, with the full confidence that they will be found to correspond in every respect with the description. They are to be had of all the principal booksellers throughout the Union, from whom, or from the publishers particulars respecting price, &c., may be had on application

BLANCHARD & LEA.

Philadelphia, May, 1851. (*Late* LEA & BLANCHARD.)

DICTIONARIES, JOURNALS, &c.

American Journal of the Medical Sciences, quarterly, at $5 a year.

Cyclopædia of Practical Medicine, by Forbes, Tweedie, &c., edited by Dunglison, in 4 super royal volumes, 3154 double columned pages.

Dunglison's Medical Dictionary, 7th ed., 1 vol. imp. 8vo., 912 large pages, double columns.

Hoblyn's Dictionary of Medical Terms, by Hays, 1 vol. large 12mo., 402 pages, double columns.

Neill and Smith's Compend of the Medical Sciences, 1 vol., large 12mo., 900 pp., 350 cuts.

Transactions of the American Medical Association, Vols. I, II, and III, cloth or paper.

Medical News and Library, monthly, at $1 a year.

ANATOMY.

Anatomical Atlas, by Smith and Horner, large imp. 8vo., 650 figures. New and cheaper ed.

Horner's Special Anatomy and Histology, new edition, 2 vols. 8vo., many cuts, (nearly ready.)

Horner's United States Dissector, 1 vol. large royal 12mo., many cuts, 444 pages.

Maclise's Surgical Anatomy, Parts I., II., III. and IV., 62 col'd pl's, imp. 4to. Price $2 00 each. Part V., and last, price $1 00, (now ready.)

Same work in 1 large im. 4to. vol., ex. cl. or sheep.

Sharpey and Quain's Anatomy, by Leidy, 2 vols. 8vo., 1300 pages, 511 wood-cuts.

Wilson's Human Anatomy, by Goddard, 4th edition, 1 vol. 8vo., 252 wood-cuts, 580 pp.

Wilson's Dissector, by Goddard. New edition, with cuts, 1 vol. 12mo., 458 pages, (now ready.)

PHYSIOLOGY.

Carpenter's Principles of Human Physiology, 1 vol. 8vo., 752 pp., 300 cuts and 2 plates, 4th edition, much improved and enlarged. 1850.

Carpenter's Elements, or Manual of Physiology, new and improved edition, 1 vol. 8vo., (nearly ready.)

Carpenter's General and Comparative Physiology, 1 vol. 8vo., many cuts, (now ready.)

Dunglison's Human Physiology, 7th edition, 2 vols. 8vo., 1428 pages, and 472 wood-cuts.

Harrison on the Nerves, 1 vol. 8vo., 292 pages.

Kirkes and Paget's Physiology, 1 vol. 12mo., many cuts, 550 pages.

Longet's Physiology. Translated by F. G. Smith. 2 vols. 8vo., many cuts, (preparing.)

Matteucci on the Physical Phenomena of Living Beings, 1 vol. 12mo., 388 pp., cuts.

Solly on the Brain, 1 vol. 8vo., 496 pp., 118 cuts.

Todd and Bowman's Physiological Anatomy and Physiology of Man, with numerous wood-cuts. Parts I., II. and III., 1 vol. 8vo., 156 wood-cuts.

PATHOLOGY.

Abercrombie on the Brain, 1 vol. 8vo., 324 pp.

Blakiston on Diseases of the Chest, 1 vol., 384 pp.

Blood and Urine Manuals, by Reese, Griffith, Markwick, Bird, and Frick, 2 vols. 12mo., many cuts and plates.

Budd on the Liver, 1 vol. 8vo., 392 pages, plates and wood-cuts.

Burrows on Cerebral Circulation, 1 vol. 8vo., 216 pages, with 6 colored plates.

Billing's Principles, new and improved edition, 1 vol. 8vo., 250 pages, (just issued.)

Bird on Urinary Deposits, 12mo., new and improved edition, (just ready.)

Copland on Palsy and Apoplexy, 1 vol. 12mo., 236 pp.

Frick on Renal Affections, 1 vol. 12mo., cuts.

Hasse's Pathological Anatomy, 8vo., 379 pages.

Hope on the Heart, new ed., pl's, 1 vol. 8vo., 572 p.

Hughes on the Lungs, &c., 1 vol. 12mo., 270 pp.

Lallemand on Spermatorrhœa, 1 vol. 8vo., 320 pp.

Mitchell on Fevers, 1 vol. 12mo., 138 pages.

Philip on Protracted Indigestion, 8vo., 240 pp.

Philips on Scrofula, 1 vol. 8vo., 350 pages.

Ricord on Venereal, new ed., 1 vol. 8vo., 340 pp.

Stanley on Diseases of the Bones, 1 vol. 8vo., 286 pages.

Vögel's Pathological Anatomy of the Human Body, 1 vol. 8vo., 536 pages, col. plates.

Wilson on the Skin, 1 vol. 8vo., new ed., 440 pp. Same work, with colored plates.

Whitehead on Sterility and Abortion, 1 vol. 8vo., 368 pages.

Williams' Principles of Medicine, by Clymer, 2d edition, 440 pages, 1 vol. 8vo.

Williams on the Respiratory Organs, by Clymer, 1 vol. 8vo., 500 pages.

PRACTICE OF MEDICINE.

Ashwell on Females, 2d ed., 1 vol. 8vo., 520 pp.

Barlow's Practice of Medicine, (preparing.)

Bennet on the Uterus, 2d and enlarged edition, 1 vol. 8vo., 356 pages.

Bartlett on Fevers, 2d edition, 550 pages.

Benedict's Compendium of Chapman's Lectures, 1 vol. 8vo., 258 pages.

Chapman on Fevers, Gout, Dropsy, &c. &c., 1 vol. 8vo., 450 pages.

Colombat de L'Isère on Females, by Meigs, 1 vol. 8vo., 720 pages, cuts. New edition.

Condie on the Diseases of Children, 3d edition, 1 vol. 8vo.

Churchill on the Diseases of Infancy and Childhood, 1 vol. 8vo.

Churchill on the Diseases of Females, by Huston, 5th edition, revised by the author, 1 vol. 8vo., 632 pages.

Churchill's Monographs of the Diseases of Females, 1 vol. 8vo., now ready, 450 pages.

Clymer and others on Fevers, a complete work in 1 vol. 8vo., 600 pages.

Day on Old Age, 1 vol. 8vo., 226 pages.

Dewees on Children, 9th ed., 1 vol. 8vo., 548 pp.

Dewees on Females, 9th ed., 1 vol. 8vo., 53: p. pls.

Dunglison's Practice of Medicine, 3d edition, 2 vols. 8vo., 1500 pages.

Esquirol on Insanity, by Hunt, 8vo., 496 pages.

Meigs' Letters on Diseases of Females, 1 vol. 8vo., 690 pp., 2d ed., improved, (lately issued.)

Meigs on Certain Diseases of Infancy, 1 vol. 8vo., 216 pp., (a new work.)

Thomson on the Sick Room, &c., 1 vol. large 12mo., 360 pages, cuts.

Watson's Principles and Practice of Physic, 3d edition by Condie, 1 vol. 8vo., 1060 large pages.

West's Lectures on the Diseases of Infancy and Childhood. 1 vol. 8vo., 452 pp.

Walshe on the Heart and Lungs. A new work, just ready, 1 vol. royal 12mo. ex. cloth.

SURGERY.

Brodie on Urinary Organs, 1 vol. 8vo., 214 pages.

Brodie on the Joints, 1 vol. 8vo., 216 pages.

Brodie's Lectures on Surgery, 1 vol. 8vo., 350 pp.

Brodie's Select Surgical Works, 780 pp. 1 vol. 8vo.

Chelius' System of Surgery, by South and Norris, in 3 large 8vo. vols., near 2200 pages.

Cooper on Dislocations and Fractures, 1 vol. 8vo., 500 pages, many cuts.

Cooper on Hernia, 1 vol. imp. 8vo., many plates.

Cooper on the Testis and Thymus Gland, 1 vol imperial 8vo., many plates.

Cooper on the Anatomy and Diseases of the Breast, Surgical Papers, &c. &c., 1 vol. imp. 8vo., pl'ts

Druitt's Principles and Practice of Modern Surgery, 1 vol. 8vo., 576 pages, 193 cuts, 4th ed.

Dufton on Deafness and Diseases of the Ear, 1 vol. 12mo., 120 pages.

Durlacher on Corns, Bunions, &c., 12mo., 134 pp.

Ear, Diseases of, a new work, (preparing.)

Fergusson's Practical Surgery, 1 vol. 8vo., 3d edition, 630 pages, 274 cuts.

Guthrie on the Bladder, 8vo., 150 pages.

Gross on Injuries and Diseases of Urinary Organs, 1 lrg. vol. 8vo., 726 pp. many cuts, (now ready.)

Jones' Ophthalmic Medicine and Surgery, by Hays, 1 vol. 12mo., 529 pp., cuts and plates.

Liston's Lectures on Surgery, by Mütter, 1 vol. 8vo., 566 pages, many cuts.

Lawrence on the Eye, by Hays, new ed. much improved, 863 pp., many cuts and plates.

Lawrence on Ruptures, 1 vol. 8vo., 480 pages.

Miller's Principles of Surgery, 2d edition, 1 vol. 8vo., 538 pp., 1848.

Miller's Practice of Surgery, 1 vol. 8vo., 496 pp.

Malgaigne's Operative Surgery, by Brittan, with cuts. (Publishing in the Med. News and Lib.)

Maury's Dental Surgery, 1 vol. 8vo., 286 pages, many plates and cuts.

Skey's Operative Surgery, 1 vol. large 8vo., many cuts, 662 pages, a new work, (just issued.)

Sargent's Minor Surgery, 1 vol. royal 12mo., 380 pages, 128 cuts.

Smith on Fractures, 1 vol. 8vo., 200 cuts, 314 pp.

MATERIA MEDICA AND THERAPEUTICS.

Bird's (Golding) Therapeutics, (preparing.)

Christison's and Griffith's Dispensatory, 1 large vol. 8vo., 216 cuts, over 1000 pages.

Carpenter on Alcoholic Liquors in Health and Disease, 1 vol. 12mo.

Dunglison's Materia Medica and Therapeutics, now ready, 4th ed., much improved, 182 cuts, 2 vols. 8vo., 1850.

Dunglison on New Remedies, 6th ed., much improved, 1 vol. 8vo., 750 pages.

De Jongh on Cod-Liver Oil, 12mo.

Ellis' Medical Formulary, 9th ed., much improved, 1 vol. 8vo., 268 pages.

Griffith's Universal Formulary, 1 large vol. 8vo., 560 pages.

Griffith's Medical Botany, a new work, 1 large vol. 8vo., 704 pp., with over 350 illustrations.

Mayne's Dispensatory, 1 vol. 12mo., 330 pages.

Mohr, Redwood, and Procter's Pharmacy, 1 vol. 8vo., 550 pages, 506 cuts.

Pereira's Materia Medica, by Carson, 3d ed., 2 vols. 8vo., much improved and enlarged, with 400 wood cuts, (nearly ready.)

Royle's Materia Medica and Therapeutics, by Carson, 1 vol. 8vo., 689 pages, many cuts.

OBSTETRICS.

Churchill's Theory and Practice of Midwifery, a new and improved ed., by Condie, 1 vol. 8vo., 510 pp., many cuts, (now ready.)

Dewees' Midwifery, 11th ed., 1 vol. 8vo., 660 pp., plates.

Lee's Clinical Midwifery, 12mo., 238 pages.

Meigs' Obstetrics; the Science and the Art; 1 vol. 8vo., 686 pages, 121 cuts.

Ramsbotham on Parturition, with many plates, 1 large vol. imperial 8vo., 520 pp. 5th edition.

Rigby's Midwifery, new edition, 1 vol. 8vo., (just issued,) 422 pages.

Smith (Tyler) on Parturition, 1 vol. 12mo., 400 pp.

CHEMISTRY AND HYGIENE.

Bowman's Practical Chemistry, 1 vol. 12mo., 97 cuts, 350 pages.

Beale on Health of Mind and Body, 1 vol. 12mo, extra cloth, (now ready.)

Brigham on Excitement, &c., 1 vol. 12mo., 204 pp.

Bowman's Medical Chemistry, 1 vol. 12mo., many cuts, just ready, 288 pages.

Dunglison on Human Health, 2d ed., 8vo., 464 pp.

Fowne's Elementary Chemistry, 3d ed., 1 vol. 12mo., much improved, many cuts, now ready.

Graham's Chemistry, by Bridges, new and improved edition. Part 1, (in press.)

Gardner's Medical Chemistry, 1 vol. 12mo. 400 pp.

Griffith's Chemistry of the Four Seasons, 1 vol. royal 12mo., 451 pages, many cuts.

Knapp's Chemical Technology, by Johnson, 2 vols. 8vo., 936 pp., 460 large cuts.

Simon's Chemistry of Man, 8vo., 730 pp., plates.

MEDICAL JURISPRUDENCE, EDUCATION, &c.

Bartlett's Philosophy of Medicine, 1 vol. 8vo., 312 pages.

Bartlett on Certainty in Medicine, 1 vol. small 8vo., 84 pages.

Dunglison's Medical Student, 2d ed. 12mo., 312 pp.

Taylor's Medical Jurisprudence, by Griffith, 1 vol. 8vo., new edition, 1850, 670 pp.

Taylor on Poisons, by Griffith, 1 vol. 8vo., 688 pp.

Traill's Medical Jurisprudence, 1 vol. 8vo., 234 pp.

NATURAL SCIENCE, &c.

Arnott's Physics, 1 vol 8vo., 484 pp., many cuts.

Ansted's Ancient World, Popular Geology, in 1 12mo. volume, with numerous cuts, 382 pages.

Bird's Natural Philosophy, 1 vol. royal 12mo., 402 pages and 372 wood-cuts.

Brewster's Optics, 1 vol. 12mo. 423 pp. many cuts.

Broderip's Zoological Recreations, 1 vol. 12mo., 376 pp.

Coleridge's Idea of Life, 12mo., 94 pages.

Carpenter's General and Comparative Physiology, 1 large 8vo. vol., many wood-cuts, (now ready.)

Dana on Zoophytes, being vol. 8 of Ex. Expedition, royal 4to., extra cloth.

Atlas to "Dana on Zoophytes," im. fol., col. pl's.

Gregory on Animal Magnetism, 1 vol., royal 12mo., (now ready.)

De la Beche's Geological Observer, 1 large 8vo. vol., many wood-cuts, (just ready.)

Hale's Ethnography and Philology of the U. S. Exploring Expedition, in 1 large imp. 4to. vol.

Herschel's Treatise on Astronomy, 1 vol. 12mo., 417 pages, numerous plates and cuts.

Herschel's Outlines of Astronomy, 1 vol. small 8vo., plates and cuts. (A new work.) 620 pp.

Humboldt's Aspects of Nature, 1 vol. 12mo., new edition.

Johnston's Physical Atlas, 1 vol. imp. 4to., half bound, 25 colored maps.

Kirby and Spence's Entomology, 1 vol. 8vo., 600 large pages; plates plain or colored.

Knox on Races of Men, 1 vol. 12mo.

Lardner's Handbooks of Natural Philosophy, 2 vols. royal 12mo., with 800 cuts, (in press.)

Müller's Physics and Meteorology, 1 vol. 8vo., 636 pp., with 540 wood-cuts and 2 col'd plates.

Small Books on Great Subjects, 12 parts, done up in 3 handsome 12mo. volumes, extra cloth.

Somerville's Physical Geography, 1 vol. 12mo., cloth, 540 pages, enlarged edition, now ready.

Weisbach's Mechanics applied to Machinery and Engineering, Vol. I. 8vo., 486 p. 550 wood-cuts. Vol. II., 8vo., 400 pp., 340 cuts.

VETERINARY MEDICINE.

Clater and Skinner's Farrier, 1 vol. 12mo., 220 pp.

Youatt's Great Work on the Horse, by Skinner, 1 vol. 8vo., 448 pages, many cuts.

Youatt and Clater's Cattle Doctor, 1 vol. 12mo., 282 pages, cuts.

Youatt on the Dog, by Lewis, 1 vol. demy 8vo., 403 pages, beautiful plates.

Youatt on the Pig, a new work, with beautiful illustrations of all the different varieties, 12mo.

Other new and important works are in preparation.

TWO MEDICAL PERIODICALS FOR FIVE DOLLARS.

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES,

EDITED BY ISAAC HAYS, M. D.,

IS PUBLISHED QUARTERLY, ON THE FIRST OF JANUARY, APRIL, JULY, AND OCTOBER,

By BLANCHARD & LEA, Philadelphia.

Each Number contains about Two Hundred and Eighty Large Octavo Pages,

Appropriately Illustrated with Engravings on Copper, Wood, Stone, &c.

Some estimate of the variety and extent of its contents may be formed from the very condensed summary of the Number for April, 1851, on the next page.

THE MEDICAL NEWS AND LIBRARY

Is Published Monthly, and consists of

THIRTY-TWO VERY LARGE OCTAVO PAGES,

Containing the Medical Information of the day, as well as a Treatise of high character on some prominent department of Medicine.

In this manner its subscribers have been supplied with

WATSON'S LECTURES ON THE PRACTICE OF MEDICINE,

BRODIE'S CLINICAL LECTURES ON SURGERY,

TODD & BOWMAN'S PHYSIOLOGY,

AND WEST ON THE DISEASES OF INFANCY AND CHILDHOOD.

And the work at present appearing in its columns is

MALGAIGNE'S OPERATIVE SURGERY,

TRANSLATED AND EDITED BY BRITTAN,
With Engravings on Wood.

Which will be completed in the present year, and be succeeded, in 1852, by a work of equal value.

TERMS.

THE SUBSCRIPTION TO THE

AMERICAN JOURNAL OF THE MEDICAL SCIENCES

IS FIVE DOLLARS PER ANNUM.

When this amount is paid in advance, the subscriber thereby becomes entitled to the

MEDICAL NEWS AND LIBRARY FOR ONE YEAR, GRATIS.

When ordered separately, the price of the "News" is ONE DOLLAR per annum, invariably in advance.

For the small sum, therefore, of FIVE DOLLARS, the subscriber can obtain a Quarterly and a Monthly Journal of the highest character, presenting about

Fifteen hundred large octavo pages, with numerous Illustrations,

Rendering these among

The Cheapest of American Medical Periodicals.

Those who are desirous of subscribing are recommended to forward their names without loss of time, as the increase of the subscription list has almost exhausted the whole edition printed for the present year, and the publishers cannot pledge themselves to supply copies unless ordered early.

REDUCTION OF POSTAGE.

Under the new postage law, to go into operation on the 1st of July next, the postage on the Journal will be, when the subscriber does not pay it in advance,

For any distance less than 500 miles,—	1	cent	per	ounce,
Between 500 and 1500	2	"	"	
" 1500 and 2500	3	"	"	
" 2500 and 3500	4	"	"	
Over 3500	5	"	"	

} Postage when not paid in advance.

The weight of each number of the Journal is from 12 to 15 ounces.

But when the subscriber pays to his post-master the postage of each number in advance, he is entitled to have it at HALF THE ABOVE RATES—or as follows:—

For any distance less than 500 miles,—	½	cent	per	ounce,
Between 500 and 1500	1	"	"	
" 1500 and 2500	1½	"	"	
" 2500 and 3500	2	"	"	
Over 3500	2½	"	"	

} Postage when paid in advance.

Subscribers will therefore see the importance of paying their postage in advance of the reception of their numbers, to entitle them to the above reduced rates.

CONTENTS OF THE

AMERICAN JOURNAL OF THE MEDICAL SCIENCES. April, 1851.

ORIGINAL COMMUNICATIONS.

MEMOIRS AND CASES pp. 285-391.

Art. I. Warren's Account of two Indian Dwarfs exhibited under the name of Aztec Children. (With two plates.) II. Watson's Cases of Gunshot Wound in Left Axilla—Ligature of Left Subclavian, and subsequent Ligatures of Brachial and Subscapular Arteries. III. Bacon's Observations on the Dumb-Bell Urinary Deposit. IV. Parsons on some of the Remote Effects of Injuries of Nerves. V. Morland's Extracts from the Records of the Boston Society for Medical Improvement. VI. Johnston's Remarkable Obstetrical Cases. (With a wood-cut.) VII. Jackson on Hot Water in Sprains. VIII. Kneeland's Report on Idiotic Crania, Idiocy, and Cretinism. IX. Adams' Case of Hæmoptysis Neonatorum. X. Dalton on a new form of Phosphate of Lime in Crystals; as it occurs in Putrefying Urine. (With seven wood-cuts.) XI. Peaslee's Case of Double Ovarian Dropsy—both Ovaries successfully removed by the large Peritoneal Section. XII. McIlvaine's Cases in Surgical Practice.

REVIEWS. pp. 391-417.

XIII. Report of the Sanitary Commission of Massachusetts. XIV. Musée d'Anatomie de la Faculté de Médecine de Strasbourg—Histoire des Polypes du Larynx. Par C. H. Ehrmann.

BIBLIOGRAPHICAL NOTICES. pp. 417-450

XV. Beck's Elements of Medical Jurisprudence. Taylor's Medical Jurisprudence. XVI. Sutton's History of Typhoid Fever. XVII. Ricord's Illustrations of Syphilitic Disease. XVIII. Nunnely on Anæsthesia and Anæsthetic Substances generally. XIX. Fosgate on Sleep Psychologically considered with reference to Sensation and Memory. XX. Webster's Notes on a Recent Visit to several Provincial Asylums for the Insane in France. XXI. Bond's Practical Treatise on Dental Medicine. XXII. Warren's Address before the American Medical Association, in Cincinnati, May 8th, 1850. XXIII. Dunglison on New Remedies, with Formulæ for their Administration. XXIV. Tilt on Diseases of Menstruation. XXV. Billing's First Principles of Medicine. Second American edition. XXVI. Murphy's Review of Chemistry for Students. XXVII. The Uses and Abuses of Air. XXVIII. Yeoman on Consumption of the Lungs. XXIX. An Appeal to the public in behalf of a Hospital for Sick Children.

QUARTERLY SUMMARY.

FOREIGN INTELLIGENCE.

ANATOMY AND PHYSIOLOGY. pp. 451-457.

1. *Peacock* on the Weight of the Brain at different periods of life. 2. *Coulson* on the Anatomy of the Subcutaneous Bursæ. 3. *Rainey* on the Round Ligament of the Uterus. 4. *Hancock* on New Muscles of the Urethra. 5. *Robertson* on Fistula of Stomach. 6. *Toynbee's* Researches to prove the Nonvascularity of certain Animal Tissues. 7. *Bernard* on the Absorption of Alimentary Substances, and the Functions of the Lacteals.

MATERIA MEDICA AND PHARMACY. pp. 458-462.

8. *Bagot* on Evil Effects following the Incautious Administration of Chloroform. 9. *Flourens* on the Effects of Chlorinated Hydrochloric Ether on Animals. 10. *Snow* on the Inhalation of various Medicinal Substances. 11. *Routh* on the Physiological Effects of Picrotoxine, or the Active Principle of Cocculus Indicus. 12. *Dorvault* on Iodognosis. 13. *Routh* on New Preparation of Phosphate of Iron.

MEDICAL PATHOLOGY AND THERAPEUTICS AND PRACTICAL MEDICINE. pp. 462-491.

14. *Ancell* on Tubercle and Tuberculosis. 15. *Van der Kolk* on Elastic Fibres in the Sputa of Phthisis. 16. *Redfern* on Fibre in the Structure of Cancer. 17. *Johnson* on Chemical and Microscopical Examination of the Urine in Renal Diseases. 18. *Johnson's* Cases of Renal Disease. 19. *Johnson's* Diagnosis of Fatty Degeneration of Kidney. 20. *Namias* on Atrophy of the Spinal Marrow. 21. *Knox* on Vaccination as a Preventive of Small-pox. 22. *Craninz* on Vaccination and Revaccination. 23. Results of Revaccination in the Prussian Army during 1849. 24. *Aran* on Abortive Treatment of Variola with Collodion. 25. *Roger* on Combination of Auscultation and Percussion. 26. *Trousseau and Lasègue* on Auscultation in the Pneumonia of Infants. 27. *Simpson* on Local Paralysis in Infancy. 28. *Helfft* on Recent Epidemic of Scarlatina at Berlin. 29. *Boudin* on Cretinism. 30. Causes and Cure of Goitre. 31. *Aran* on Chloroform in Lead-Colic. 32. *Bazin and Bourguignon* on the Treatment of Itch. 33. *Trousseau* on Disease of the Heart and Chorea. 34. Sulphate of Zinc in Chorea. 35. *Chambers* on the Treatment of Obesity.

SURGICAL PATHOLOGY AND THERAPEUTICS AND OPERATIVE SURGERY. pp. 491-516.

36. *Hewett's* Case illustrating the Difficulties of Diagnosis of Morbid Growths from the Upper Jaw. 37. *Skey* on the Results of the use of Chloroform in 9000 cases at St. Bartholomew's Hospital. 38. *Coulson* on the Pathology and Treatment of enlarged Subcutaneous Bursæ. 39 *Lloyd's* Treatment of certain cases of Hare-lip. 40 *Walton* on Excision of the Head of the Femur. 41. *Norman's* Case of Ovariotomy; Spontaneous Disappearance of Ovarian Tumours. 42. *Taylor's* Case of Tumour for which the Operation of Ovariotomy was attempted more than twenty-five years ago, with Dissection. 43. *Smyly* on Femoral Aneurism cured by Compression. 44. *Wakley's* New Instruments for the Cure of Stricture. 45. *Stark* on Rupture of the Crucial Ligament of the Knee-joint. 46. Cotton Wadding as an Application to Bed-Sores and Varicose Ulcers.

OPHTHALMOLOGY. pp. 516-519.

47. *Jacob* on Preparatory and After-treatment in Cataract Operations.

MIDWIFERY. pp. 519-524.

48. *Gray's* Case of Protrusion of the Hand of the Child through the Walls of the Vagina and Rectum in a case of Head Presentation. 49. *Thatcher* on Central Laceration of the Perineum. 50. *West's* Case of Cæsarian Section, with Remarks on the Danger of the Operation. 51. *Oldham's* Case of Cæsarian Section. 52. *Lee* on the Cæsarian Section and Premature Labour. 53. *Lagas* on Injury of the Cranium and Wound of the Brain in a New-born Child—Recovery. 54. Quintuple Birth. 55. *Farrige* on Polypous Excrescences from Umbilicus in New-born Children.

MEDICAL JURISPRUDENCE AND TOXICOLOGY. pp. 224-530.

56. Identity. 57. Abortion. 58. Ancient Trial for Impotence. 59. Absence of Milk after Delivery. 60. Present Law of Virginia concerning Abortion. 61. Legal Definition of what constitutes a Wound. 62. Procuring Abortion, or Premature Birth. 63. Poisoning with Cocculus Indicus. 64. *Chevalier* on the Diseases of Manufacturers of Sulphate of Quinine. 65. *Pelouse and Barnard* on Curare. 66. *Salisbury's* Case of Abortion by Savin.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS. pp. 531-534.

Wills Hospital—Service of Dr. Isaac Hays—Cases discharged from Oct. 1st, 1850, to Jan. 1, 1851. By A. F. Macintyre, M. D. *Gardette* on Lectureship on Dental Surgery in Medical Colleges.

DOMESTIC SUMMARY. pp. 535-544.

Church on Femoral Aneurism cured by Compression. *Lente* on Coup de Soleil, or Sun Stroke. *Jeter's* Case of Cæsarian Section. *Campbell* on Striped and Unstriped Muscular Fibre. *Cooke's* Antilithic Paste. *Wright* on the Vapour of Water in an Overdose of Opium. Refracture of a Leg to Improve Defective Surgery. *Ready* on Aphonia and Obstinate Cough from Prolongation of the Uvula. *Lindsly's* two Cases of Mumps, with Metastasis to the Brain, both terminating fatally. *Dugas* on Dislocation of the Radius and Ulna backwards at the Elbow. An Act to Promote Medical Inquiry and Instruction. By Mr. Tuthill. American Medical Association.

GROSS ON URINARY ORGANS—(Now Ready.)

A PRACTICAL TREATISE ON THE

DISEASES AND INJURIES OF THE URINARY ORGANS.

BY S. D. GROSS, M. D., &c.,

Professor of Surgery in the New York University.

In one large and beautifully printed octavo volume, of over seven hundred pages.

With numerous Illustrations.

The author of this work has devoted several years to its preparation, and has endeavored to render it complete and thorough on all points connected with the important subject to which it is devoted. It contains a large number of original illustrations, presenting the natural and pathological anatomy of the parts under consideration, instruments, modes of operation, &c. &c., and in mechanical execution it is one of the handsomest volumes yet issued from the American press.

A very condensed summary of the contents is subjoined.

INTRODUCTION.—CHAPTER I. Anatomy of the Perinæum.—CHAP. II. Anatomy of the Urinary Bladder.—CHAP. III. Anatomy of the Prostate.—CHAP. IV, Anatomy of the Urethra.—CHAP. V, Urine.

PART. I, DISEASES AND INJURIES OF THE BLADDER.

CHAP. I, Malformations and Imperfections.—CHAP. II. Injuries of the Bladder.—CHAP. III, Inflammation of the Bladder.—CHAP. IV, Chronic Lesions of the Bladder.—CHAP. V, Nervous Affections of the Bladder.—CHAP. VI. Heterologous Formations of the Bladder.—CHAP. VII, Polypous, Fungous, Erectile, and other Morbid Growths of the Bladder.—CHAP. VIII Worms in the Bladder—CHAP. IX, Serous Cysts and Hydatids.—CHAP. X, Fœtal Remains in the Bladder.—CHAP. XI, Hair in the Bladder.—CHAP. XII, Air in the Bladder.—CHAP. XIII. Hemorrhage of the Bladder.—CHAP. XIV, Retention of Urine.—CHAP. XV, Incontinence of Urine.—CHAP. XVI, Hernia of the Bladder.—CHAP. XVII, Urinary Deposits.—CHAP. XVIII, Stone in the Bladder.—CHAP. XIX. Foreign Bodies in the Bladder.

PART II. DISEASES AND INJURIES OF THE PROSTATE GLAND.

CHAP. I, Wounds of the Prostate.—CHAP. II. Acute Prostatis.—CHAP. III, Hypertrophy of the Prostate.—CHAP. IV, Atrophy of the Prostate.—CHAP. V, Heterologous Formations of the Prostate.—CHAP. VI, Cystic Disease of the Prostate.—CHAP. VII. Fibrous Tumors of the Prostate.—CHAP. VIII, Hemorrhage of the Prostate.—CHAP. IX. Calculi of the Prostate.—CHAP. X, Phlebitis of the Prostate.

PART III, DISEASES AND INJURIES OF THE URETHRA.

CHAP. I, Malformations and Imperfections of the Urethra.—CHAP. II. Laceration of the Urethra.—CHAP. III, Stricture of the Urethra.—CHAP. IV, Polypoid and Vascular Tumors of the Urethra.—CHAP. V, Neuralgia of the Urethra.—CHAP. VI, Hemorrhage of the Urethra.—CHAP. VII, Foreign Bodies in the Urethra.—CHAP. VIII, Infiltration of Urine.—CHAP IX. Urinary Abscess.—CHAP. X, Fistula of the Urethra.—CHAP. XI, False Passages.—CHAP. XII, Lesions of the Gallinaginous Crest.—CHAP. XIII, Inflammation and Abscess of Cowper's Glands.

COOPER ON DISLOCATIONS.—New Edition (Now Ready).

A TREATISE ON

DISLOCATIONS AND FRACTURES OF THE JOINTS.

BY SIR ASTLEY P. COOPER, BART., F. R. S., &c.

EDITED BY BRANSBY B. COOPER, F. R. S., &c.

WITH ADDITIONAL OBSERVATIONS BY PROF. J. C. WARREN.

A NEW AMERICAN EDITION,

In one handsome octavo volume, with numerous illustrations on wood.

After the fiat of the profession, it would be absurd in us to eulogize Sir Astley Cooper's work on Dislocations. It is a national one, and will probably subsist as long as English Surgery.—*Medico-Chirurg. Review.*

WORKS BY THE SAME AUTHOR.

COOPER (SIR ASTLEY) ON THE ANATOMY AND TREATMENT OF ABDOMINAL HERNIA. 1 large vol., imp. 8vo., with over 130 lithographic figures.

COOPER ON THE STRUCTURE AND DISEASES OF THE TESTIS, AND ON THE THYMUS GLAND. 1 vol., imp. 8vo., with 177 figures on 29 plates.

COOPER ON THE ANATOMY AND DISEASES OF THE BREAST, WITH TWENTY-FIVE MISCELLANEOUS AND SURGICAL PAPERS. 1 large vol., imp. 8vo., with 252 figures on 36 plates.

These three volumes complete the surgical writings of Sir Astley Cooper. They are very handsomely printed, with a large number of lithographic plates, executed in the best style, and are presented at exceedingly low prices.

LISTON & MUTTER'S SURGERY.

LECTURES ON THE OPERATIONS OF SURGERY,

AND ON DISEASES AND ACCIDENTS REQUIRING OPERATIONS.

BY ROBERT LISTON, ESQ., F. R. S., &c.

EDITED, WITH NUMEROUS ADDITIONS AND ALTERATIONS,

BY T. D. MÜTTER, M. D.,

Professor of Surgery in the Jefferson Medical College of Philadelphia.

In one large and handsome octavo volume of 566 pages, with 216 wood-cuts.

LIBRARY OF SURGICAL KNOWLEDGE.

A SYSTEM OF SURGERY.

BY J. M. CHELIUS.

TRANSLATED FROM THE GERMAN,

AND ACCOMPANIED WITH ADDITIONAL NOTES AND REFERENCES,

BY JOHN F. SOUTH.

Complete in three very large octavo volumes of nearly 2200 pages, strongly bound, with raised bands and double titles: or in seventeen numbers, at fifty cents each.

We do not hesitate to pronounce it the best and most comprehensive system of modern surgery with which we are acquainted.—*Medico-Chirurgical Review.*

The fullest and ablest digest extant of all that relates to the present advanced state of Surgical Pathology.—*American Medical Journal.*

If we were confined to a single work on Surgery, that work should be Chelius's.—*St. Louis Med. Journal.*

As complete as any system of Surgery can well be.—*Southern Medical and Surgical Journal.*

The most finished system of Surgery in the English language.—*Western Lancet*

The most learned and complete systematic treatise now extant—*Edinburgh Medical Journal.*

No work in the English language comprises so large an amount of information relative to operative medicine and surgical pathology.—*Medical Gazette.*

A complete encyclopedia of surgical science—a very complete surgical library—by far the most complete and scientific system of surgery in the English language.—*N. Y. Journal of Medicine.*

One of the most complete treatises on Surgery in the English language—*Monthly Journal of Med. Science.*

The most extensive and comprehensive account of the art and science of Surgery in our language.—*Lancet.*

A TREATISE ON THE DISEASES OF THE EYE.

BY W. LAWRENCE, F.R.S.

A new Edition. With many Modifications and Additions, and the introduction of nearly 200 Illustrations,

BY ISAAC HAYS, M.D.

In one very large 8vo. vol. of 860 pages, with plates and wood-cuts through the text.

JONES ON THE EYE.

THE PRINCIPLES AND PRACTICE

OF OPHTHALMIC MEDICINE AND SURGERY.

BY T. WHARTON JONES, F.R.S., &c. &c.

EDITED BY ISAAC HAYS, M.D., &c.

In one very neat volume, large royal 12mo. of 529 pages, with four plates, plain or colored, and ninety-eight well executed wood-cuts.

MILLER'S PRINCIPLES AND PRACTICE OF SURGERY.

THE PRINCIPLES OF SURGERY.

Second edition, one vol. 8vo.

THE PRACTICE OF SURGERY.

Second edition, one vol. 8vo.

BY JAMES MILLER, F.R.S.E.,

Professor of Surgery in the University of Edinburgh, &c.

STANLEY ON THE BONES.—A Treatise on Diseases of the Bones. In one vol. 8vo., extra cloth. 286 pp.

BRODIE'S SURGICAL LECTURES.—Clinical Lectures on Surgery. 1 vol. 8vo., cloth. 350 pp.

BRODIE ON THE JOINTS.—Pathological and Surgical Observations on the Diseases of the Joints. 1 vol. 8vo. cloth. 216 pp.

BRODIE ON URINARY ORGANS.—Lectures on the Diseases of the Urinary Organs. 1 vol. 8vo., cloth. 214 pp.

*** These three works may be had neatly bound together, forming a large volume of "Brodie's Surgical Works." 780 pp.

RICORD ON VENEREAL.—A Practical Treatise on Venereal Diseases. With a Therapeutical Summary and Special Formulary. Translated by Sidney Doane, M.D. Fourth edition. 1 vol. 8vo. 340 pp.

DURLACHER ON CORNS, BUNIONS, &c.—A Treatise on Corns, Bunions, the Diseases of Nails, and the General Management of the Feet. In one 12mo. volume, cloth. 134 pp.

GUTHRIE ON THE BLADDER, &c.—The Anatomy of the Bladder and Urethra, and the Treatment of the Obstructions to which those Passages are liable. In one vol. 8vo. 150 pp.

LAWRENCE ON RUPTURES.—A Treatise on Ruptures, from the fifth London Edition. In one 8vo. vol. sheep. 480 pp.

MAURY'S DENTAL SURGERY.—A Treatise on the Dental Art, founded on Actual Experience. Illustrated by 241 lithographic figures and 54 wood-cuts. Translated by J. B. Savier. In 1 8vo. vol., sheep. 286 pp.

DUFTON ON THE EAR.—The Nature and Treatment of Deafness and Diseases of the Ear; and the Treatment of the Deaf and Dumb. One small 12mo. volume. 120 pp.

MALGAIGNE'S SURGERY—Operative Surgery, translated, with Notes, by Brittan. With wood-cuts. (Now publishing in the "Medical News and Library.")

SMITH ON FRACTURES.—A Treatise on Fractures in the vicinity of Joints, and on Dislocations. One vol. 8vo., with 200 beautiful wood-cuts.

NEW AND IMPORTANT WORK ON PRACTICAL SURGERY.—(NOW READY.)

OPERATIVE SURGERY.

BY FREDERICK C. SKEY, F. R. S., &c.

In one very handsome octavo volume of over 650 pages, with about one hundred wood-cuts.

The object of the author, in the preparation of this work, has been not merely to furnish the student with a guide to the actual processes of operation, embracing the practical rules required to justify an appeal to the knife, but also to present a manual embodying such *principles* as might render it a permanent work of reference to the practitioner of operative surgery, who seeks to uphold the character of his profession as a science as well as an art. In its composition he has relied mainly on his own experience, acquired during many years' service at one of the largest of the London hospitals, and has rarely appealed to other authorities, except so far as personal intercourse and a general acquaintance with the most eminent members of the surgical profession have induced him to quote their opinions.

From Professor C. B. Gibson, Richmond, Virginia.

I have examined the work with some care, and am delighted with it. The style is admirable, the matter excellent, and much of it original and deeply interesting, whilst the illustrations are numerous and better executed than those of any similar work I possess.

In conclusion we must express our unqualified praise of the work as a whole. The high moral tone, the liberal views, and the sound information which pervades it throughout, reflect the highest credit upon the talented author. We know of no one who has succeeded, whilst supporting operative surgery in its proper rank, in promulgating at the same time sounder and more enlightened views upon that most important of all subjects, the principle that should guide us in having recourse to the knife.—*Medical Times.*

The treatise is, indeed, one on operative surgery, but it is one in which the author throughout shows that he is most anxious to place operative surgery in its just position. He has acted as a judicious, but not partial friend; and while he shows throughout that he is able and ready to perform any operation which the exigencies and casualties of the human frame may require, he is most cautious in specifying the circumstances which in each case indicate and contraindicate operation. It is indeed gratifying to perceive the sound and correct views which Mr. Skey entertains on the subject of operations in general, and the gentlemanly tone in which he impresses on readers the lessons which he is desirous to inculcate. His work is a perfect model for the operating surgeon, who will learn from it not only when and how to operate, but some more noble and exalted lessons which cannot fail to improve him as a moral and social agent.—*Edinburgh Medical and Surgical Journal.*

THE STUDENT'S TEXT-BOOK.

THE PRINCIPLES AND PRACTICE OF MODERN SURGERY.

BY ROBERT DRUITT, Fellow of the Royal College of Surgeons.

A New American, from the last and improved London Edition.

EDITED BY F. W. SARGENT, M. D., Author of "Minor Surgery," &c.

ILLUSTRATED WITH ONE HUNDRED AND NINETY-THREE WOOD ENGRAVINGS.

In one very handsomely printed octavo volume of 576 large pages.

From Professor Brainard, of Chicago, Illinois.

I think it the best work of its size, on that subject, in the language.

From Professor Rivers, of Providence, Rhode Island.

I have been acquainted with it since its first republication in this country, and the universal praise it has received I think well merited.

From Professor May, of Washington, D. C.

Permit me to express my satisfaction at the republication in so improved a form of this most valuable work. I believe it to be one of the very best text-books ever issued.

From Professor McCook, of Baltimore.

I cannot withhold my approval of its merits, or the expression that no work is better suited to the wants of the student. I shall commend it to my class, and make it my chief text-book.

FERGUSSON'S OPERATIVE SURGERY. NEW EDITION.

A SYSTEM OF PRACTICAL SURGERY.

BY WILLIAM FERGUSSON, F. R. S. E.,

Professor of Surgery in King's College, London, &c. &c.

THIRD AMERICAN, FROM THE LAST ENGLISH EDITION.

With 274 Illustrations.

In one large and beautifully printed octavo volume of six hundred and thirty pages.

It is with unfeigned satisfaction that we call the attention of the profession in this country to this excellent work. It richly deserves the reputation conceded to it, of being the best practical Surgery extant, at least in the English language.—*Medical Examiner.*

A NEW MINOR SURGERY.

ON BANDAGING AND OTHER POINTS OF MINOR SURGERY.

BY F. W. SARGENT, M. D.

In one handsome royal 12mo. volume of nearly 400 pages, with 128 wood-cuts.

From Professor Gilbert, Philadelphia.

Embracing the smaller details of surgery, which are illustrated by very accurate engravings, the work becomes one of very great importance to the practitioner in the performance of his daily duties, since such information is rarely found in the general works on surgery now in use.

THE GREAT ATLAS OF SURGICAL ANATOMY.
(NOW COMPLETE.)

SURGICAL ANATOMY.

BY JOSEPH MACLISE, SURGEON.

IN ONE VOLUME, IN VERY LARGE IMPERIAL QUARTO.

With Sixty-eight large and splendid Plates, many of them the size of life,

DRAWN IN THE BEST STYLE AND BEAUTIFULLY COLORED.

TOGETHER WITH OVER ONE HUNDRED AND FIFTY LARGE DOUBLE-COLUMNED PAGES.

Strongly and handsomely bound, being one of the best executed and cheapest surgical works ever presented in this country.

ALSO, TO BE HAD IN PARTS,
Parts I. to IV., price Two Dollars each—Part V., One Dollar.

This great work being now complete, the publishers confidently present it to the attention of the profession as worthy in every respect of their approbation and patronage. No complete work of the kind has yet been published in the English language, and it therefore will supply a want long felt in this country of an accurate and comprehensive Atlas of Surgical Anatomy to which the student and practitioner can at all times refer, to ascertain the exact relative position of the various portions of the human frame towards each other and to the surface, as well as their abnormal deviations. The importance of such a work to the student in the absence of anatomical material, and to the practitioner when about attempting an operation, is evident, while the price of the book, notwithstanding the large size, beauty, and finish of the very numerous illustrations is so low as to place it within the reach of every member of the profession. The publishers therefore confidently anticipate a very extended circulation for this magnificent work.

To present some idea of the scope of the volume, and of the manner in which its plan has been carried out, the publishers subjoin a very brief summary of the plates.

Plates 1 and 2.—Form of the Thoracic Cavity and Position of the Lungs, Heart, and larger Blood-vessels.
Plates 3 and 4.—Surgical Form of the Superficial Cervical and Facial Regions, and the Relative Positions of the principal Blood-vessels, Nerves, &c.
Plates 5 and 6.—Surgical Form of the Deep Cervical and Facial Regions, and Relative Positions of the principal Blood-vessels, Nerves, &c.
Plates 7 and 8.—Surgical Dissection of the Subclavian and Carotid Regions, and Relative Anatomy of their Contents.
Plates 9 and 10.—Surgical Dissection of the Sterno-Clavicular or Tracheal Region, and Relative Position of its main Blood-vessels, Nerves, &c.
Plates 11 and 12.—Surgical Dissection of the Axillary and Brachial Regions, displaying the Relative Order of their contained parts.
Plates 13 and 14.—Surgical Form of the Male and Female Axillæ compared.
Plates 15 and 16.—Surgical Dissection of the Bend of the Elbow and the Forearm, showing the Relative Position of the Arteries, Veins, Nerves, &c.
Plates 17, 18 and 19.—Surgical Dissections of the Wrist and Hand.
Plates 20 and 21.—Relative Position of the Cranial, Nasal, Oral, and Pharyngeal Cavities, &c.
Plate 22.—Relative Position of the Superficial Organs of the Thorax and Abdomen.
Plate 23.—Relative Position of the Deeper Organs of the Thorax and those of the Abdomen.
Plate 24.—Relations of the Principal Blood-vessels to the Viscera of the Thoracico-Abdominal Cavity.
Plate 25.—Relations of the Principal Blood-vessels of the Thorax and Abdomen to the Osseous Skeleton, &c.
Plate 26.—Relation of the Internal Parts to the External Surface of the Body.
Plate 27.—Surgical Dissection of the Principal Blood-vessels, &c., of the Inguino-Femoral Region.
Plates 28 and 29.—Surgical Dissection of the First, Second, Third, and Fourth Layers of the Inguinal Region, in connection with those of the Thigh.
Plates 30 and 31.—The Surgical Dissection of the Fifth, Sixth, Seventh and Eighth Layers of the Inguinal Region, and their connection with those of the Thigh.
Plates 32, 33 and 34.—The Dissection of the Oblique or External and the Direct or Internal Inguinal Hernia.
Plates 35, 36, 37 and 38.—The Distinctive Diagnosis between External and Internal Inguinal Hernia, the Taxis, the Seat of Stricture, and the Operation.
Plates 39 and 40.—Demonstrations of the Nature of Congenital and Infantile Inguinal Hernia, and of Hydrocele.
Plates 41 and 42.—Demonstrations of the Origin and Progress of Inguinal Hernia in general.
Plates 43 and 44.—The Dissection of Femoral Hernia, and the Seat of Stricture.
Plates 45 and 46.—Demonstrations of the Origin and Progress of Femoral Hernia, its Diagnosis, the Taxis, and the Operation.
Plate 47.—The Surgical Dissection of the principal Blood-vessels and Nerves of the Iliac and Femoral Regions.
Plates 48 and 49.—The Relative Anatomy of the Male Pelvic Organs.
Plates 50 and 51.—The Surgical Dissection of the Superficial Structures of the Male Perineum.
Plates 52 and 53.—The Surgical Dissection of the Deep Structures of the Male Perineum.—The Lateral Operation of Lithotomy.

MACLISE'S SURGICAL ANATOMY—(Continued.)

Plates 54, 55 and 56.—The Surgical Dissection of the Male Bladder and Urethra.—Lateral and Bilateral Lithotomy compared.
Plates 57 and 58.—Congenital and Pathological Deformities of the Prepuce and Urethra.—Structure and Mechanical Obstructions of the Urethra.
Plates 59 and 60.—The various forms and positions of Strictures and other Obstructions of the Urethra.—False Passages.—Enlargements and Deformities of the Prostate.
Plates 61 and 62.—Deformities of the Prostate.—Deformities and Obstructions of the Prostatic Urethra.
Plates 63 and 64.—Deformities of the Urinary Bladder.—The Operations of Sounding for Stone, of Catheterism, and of Puncturing the Bladder above the Pubes.
Plates 65 and 66.—The Surgical Dissection of the Popliteal Space, and the Posterior Crural Region.
Plates 67 and 68.—The Surgical Dissection of the Anterior Crural Region, the Ankles, and the Foot.

Notwithstanding the short time in which this work has been before the profession, it has received the unanimous approbation of all who have examined it. From among a very large number of commendatory notices with which they have been favored, the publishers select the following:—

From Prof. Kimball, Pittsfield, Mass.

I have examined these numbers with the greatest satisfaction, and feel bound to say that they are altogether, the most perfect and satisfactory plates of the kind that I have ever seen.

From Prof. Brainard, Chicago, Ill.

The work is extremely well adapted to the use both of students and practitioners, being sufficiently extensive for practical purposes, without being so expensive as to place it beyond their reach. Such a work was a desideratum in this country, and I shall not fail to recommend it to those within the sphere of my acquaintance.

From Prof. P. F. Eve, Augusta, Ga.

I consider this work a great acquisition to my library, and shall take pleasure in recommending it on all suitable occasions.

From Prof. Peaslee, Brunswick, Me.

The second part more than fulfils the promise held out by the first, so far as the beauty of the illustrations is concerned: and, perfecting my opinion of the value of the work, so far as it has advanced, I need add nothing to what I have previously expressed to you.

From Prof. Gunn, Ann Arbor, Mich.

The plates in your edition of Maclise answer, in an eminent degree, the purpose for which they are intended. I shall take pleasure in exhibiting it and recommending it to my class.

From Prof. Rivers, Providence, R. I.

The plates illustrative of Hernia are the most satisfactory I have ever met with.

From Professor S. D. Gross, Louisville, Ky.

The work, as far as it has progressed, is most admirable, and cannot fail, when completed, to form a most valuable contribution to the literature of our profession. It will afford me great pleasure to recommend it to the pupils of the University of Louisville.

From Professor R. L. Howard, Columbus, Ohio.

In all respects, the first number is the beginning of a most excellent work, filling completely what might be considered hitherto a vacuum in surgical literature. For myself, in behalf of the medical profession, I wish to express to you my thanks for this truly elegant and meritorious work. I am confident that it will meet with a ready and extensive sale. I have spoken of it in the highest terms to my class and my professional brethren.

From Prof. C. B. Gibson, Richmond, Va.

I consider Maclise very far superior, as to the drawings, to any work on Surgical Anatomy with which I am familiar, and I am particularly struck with the exceedingly low price at which it is sold. I cannot doubt that it will be extensively purchased by the profession.

From Prof. Granville S. Pattison, New York.

The profession, in my opinion, owe you many thanks for the publication of this beautiful work—a work which, in the correctness of its exhibitions of Surgical Anatomy, is not surpassed by any work with which I am acquainted; and the admirable manner in which the lithographic plates have been executed and colored is alike honorable to your house and to the arts in the United States.

From Prof. J. F. May, Washington, D. C.

Having examined the work, I am pleased to add my testimony to its correctness, and to its value as a work of reference by the surgeon.

From Prof. Alden Marsh, Albany, N. Y.

From what I have seen of it, I think the design and execution of the work admirable, and, at the proper time in my course of lectures, I shall exhibit it to the class, and give it a recommendation worthy of its great merit.

From H. H. Smith, M. D., Philadelphia.

Permit me to express my gratification at the execution of Maclise's Surgical Anatomy. The plates are, in my opinion, the best lithographs that I have seen of a medical character, and the coloring of this number cannot, I think, be improved. Estimating highly the contents of this work, I shall continue to recommend it to my class as I have heretofore done.

From Prof. D. Gilbert, Philadelphia.

Allow me to say, gentlemen, that the thanks of the profession at large, in this country, are due to you for the republication of this admirable work of Maclise. The precise relationship of the organs in the regions displayed is so perfect, that even those who have daily access to the dissecting-room may, by consulting this work, enliven and confirm their anatomical knowledge prior to an operation. But it is to the thousands of practitioners of our country who cannot enjoy these advantages that the perusal of those plates, with their concise and accurate descriptions, will prove of infinite value. These have supplied a desideratum, which will enable them to refresh their knowledge of the important structures involved in their surgical cases, thus establishing their self confidence, and enabling them to undertake operative procedures with every assurance of success. And as all the practical departments in medicine rest upon the same basis, and are enriched from the same sources, I need hardly add that this work should be found in the library of every practitioner in the land.

MACLISE'S SURGICAL ANATOMY—(Continued.)

From Professor J. M. Bush, Lexington, Ky.

I am delighted with both the plan and execution of the work, and shall take all occasions to recommend it to my private pupils and public classes.

The most accurately engraved and beautifully colored plates we have ever seen in an American book—one of the best and cheapest surgical works ever published.—*Buffalo Medical Journal.*

It is very rare that so elegantly printed, so well illustrated, and so useful a work, is offered at so moderate a price.—*Charleston Medical Journal.*

A work which cannot but please the most fastidious lover of surgical science, and we hesitate not to say that if the remaining three numbers of this work are in keeping with the present, it cannot fail to give universal satisfaction. In it, by a succession of plates, are brought to view the relative anatomy of the parts included in the important surgical divisions of the human body, with that fidelity and neatness of touch which is scarcely excelled by nature herself. The part before us differs in many respects from anything of the kind which we have ever seen before. While we believe that nothing but an extensive circulation can compensate the publishers for the outlay in the production of this edition of the work—furnished as it is at a very moderate price, within the reach of *all*—we desire to see it have that circulation which the zeal and peculiar skill of the author (he being his own draughtsman), the utility of the work, and the neat style with which it is executed, should demand for it in a liberal profession.—*N. Y. Journal of Medicine.*

This is an admirable reprint of a deservedly popular London publication. Its English prototype, although not yet completed, has already won its way, amongst our British brethren, to a remarkable success. Its plates can boast a superiority that places them almost beyond the reach of competition. And we feel too thankful to the Philadelphia publishers for their very handsome reproduction of the whole work, and at a rate within everybody's reach, not to urge all our medical friends to give it, for their own sakes, the cordial welcome it deserves, in a speedy and extensive circulation.—*The Medical Examiner.*

The plates are accompanied by references and explanations, and when the whole has been published it will be a complete and beautiful system of Surgical Anatomy, having an advantage which is important, and not possessed by colored plates generally, viz., its cheapness, which places it within the reach of every one who may feel disposed to possess the work. Every practitioner, we think, should have a work of this kind within reach, as there are many operations requiring immediate performance in which a book of reference will prove most valuable.—*Southern Medical and Surg. Journal.*

The work of Maclise on Surgical Anatomy is of the highest value. In some respects it is the best publication of its kind we have seen, and is worthy of a place in the library of any medical man, while the student could scarcely make a better investment than this.—*The Western Journal of Medicine and Surgery.*

No such lithographic illustrations of surgical regions have hitherto, we think, been given. While the operator is shown every vessel and nerve where an operation is contemplated, the exact anatomist is refreshed by those clear and distinct dissections which every one must appreciate who has a particle of enthusiasm. The English medical press has quite exhausted the words of praise in recommending this admirable treatise. Those who have any curiosity to gratify in reference to the perfectibility of the lithographic art in delineating the complex mechanism of the human body, are invited to examine our specimen copy. If anything will induce surgeons and students to patronize a book of such rare value and every-day importance to them, it will be a survey of the artistical skill exhibited in these fac-similes of nature.—*Boston Medical and Surg. Journal.*

The fidelity and accuracy of the plates reflect the highest credit upon the anatomical knowledge of Mr. Maclise. We strongly recommend the descriptive commentaries to the perusal of the student both of surgery and medicine. These plates will form a valuable acquisition to practitioners settled in the country, whether engaged in surgical, medical, or general practice.—*Edinburgh Medical and Surgical Journal.*

We are well assured that there are none of the cheaper, and but few of the more expensive works on anatomy, which will form so complete a guide to the student or practitioner as these plates. To practitioners, in particular, we recommend this work as far better, and not at all more expensive, than the heterogeneous compilations most commonly in use, and which, whatever their value to the student preparing for examination, are as likely to mislead as to guide the physician in physical examination, or the surgeon in the performance of an operation.—*Monthly Journal of Medical Sciences.*

The dissections from which these various illustrations are taken appear to have been made with remarkable success; and they are most beautifully represented. The surgical commentary is pointed and practical. We know of no work on surgical anatomy which can compete with it.—*Lancet.*

This is by far the ablest work on Surgical Anatomy that has come under our observation. We know of no other work that would justify a student, in any degree, for neglect of actual dissection. A careful study of these plates, and of the commentaries on them, would almost make an anatomist of a diligent student. And to one who has studied anatomy by dissection, this work is invaluable as a perpetual remembrancer, in matters of knowledge that may slip from the memory. The practitioner can scarcely consider himself equipped for the duties of his profession without such a work as this, and this has no rival, in his library. In those sudden emergencies that so often arise, and which require the instantaneous command of minute anatomical knowledge, a work of this kind keeps the details of the dissecting-room perpetually fresh in the memory. We appeal to our readers, whether any one can justifiably undertake the practice of medicine who is not prepared to give all needful assistance, in all matters demanding immediate relief.

We repeat that no medical library, however large, can be complete without Maclise's Surgical Anatomy. The American edition is well entitled to the confidence of the profession, and should command, among them, an extensive sale. The investment of the amount of the cost of this work will prove to be a very profitable one, and if practitioners would qualify themselves thoroughly with such important knowledge as is contained in works of this kind, there would be fewer of them sighing for employment. The medical profession should spring towards such an opportunity as is presented in this republication, to encourage frequent repetitions of American enterprise of this kind.—*The Western Journal of Medicine and Surgery*

It is a wonderful triumph, showing what ingenuity, skill, and enterprise can effect if supported by a sufficient number of purchasers. No catchpenny sketches on flimsy material and with bad print, but substantial lithographs on fine paper and with a bold and legible type. The drawings are of the first class, and the light and shade so liberally provided for, that the most ample expression, with great clearness and sharpness of outline, is secured.—*Dublin Medical Press.*

Our hearty good wishes attend this work, which promises to supply, when complete, a far better series of delineations of surgical regions than has been yet given and at a price as low as that of the most ordinary series of illustrations.—*The British and Foreign Medico Chirurgical Review.*

The plates continue to be of the same excellent character that we have before ascribed to them, and their description all that might naturally be expected from so good an anatomist as Mr. Maclise. The work ought to be in the possession of every one, for it really forms a valuable addition to a surgical library.—*The Medical Times.*

It is, and it must be unique, for the practical knowledge of the surgeon, the patience and skill of the dissector, in combination with the genius of the artist, as here displayed, have never before been, and perhaps, never will be again associated to a similar extent in the same individual.—*Lancet.*

The plates are accurate and truthful; and there is but one word in the English language descriptive of the letter-press—faultless.

For the quality, it is the cheapest work that we have seen, and will constitute a valuable contribution to the surgeon's library.—*The N. W. Medical and Surgical Journal.*

SHARPEY AND QUAIN'S ANATOMY.—Lately Issued.

HUMAN ANATOMY.

BY JONES QUAIN, M.D.

FROM THE FIFTH LONDON EDITION.

EDITED BY

RICHARD QUAIN, F.R.S.,

AND

WILLIAM SHARPEY, M.D., F.R.S.,

Professors of Anatomy and Physiology in University College, London.

REVISED, WITH NOTES AND ADDITIONS,

BY JOSEPH LEIDY, M.D.

Complete in Two large Octavo Volumes, of about Thirteen Hundred Pages.

BEAUTIFULLY ILLUSTRATED

With over Five Hundred Engravings on Wood.

We have here one of the best expositions of the present state of anatomical science extant. There is not probably a work to be found in the English language which contains so complete an account of the progress and present state of general and special anatomy as this. By the anatomist this work must be eagerly sought for, and no student's library can be complete without it.—*The N. Y. Journal of Medicine.*

We know of no work which we would sooner see in the hands of every student of this branch of medical science than Sharpey and Quain's Anatomy.—*The Western Journal of Medicine and Surgery.*

It may now be regarded as the most complete and best posted up work on anatomy in the language. It will be found particularly rich in general anatomy.—*The Charleston Medical Journal.*

We believe we express the opinion of all who have examined these volumes, that there is no work superior to them on the subject which they so ably describe.—*Southern Medical and Surgical Journal.*

It is one of the most comprehensive and best works upon anatomy in the English language. It is equally valuable to the teacher, practitioner, and student in medicine, and to the surgeon in particular.—*The Ohio Medical and Surgical Journal.*

To those who wish an extensive treatise on Anatomy, we recommend these handsome volumes as the best that have ever issued from the English or American Press.—*The N. W. Medical and Surgical Journal.*

We believe that any country might safely be challenged to produce a treatise on anatomy so readable, so clear, and so full upon all important topics.—*British and Foreign Medico-Chirurgical Review.*

It is indeed a work calculated to make an era in anatomical study, by placing before the student every department of his science, with a view to the relative importance of each; and so skilfully have the different parts been interwoven, that no one who makes this work the basis of his studies will hereafter have any excuse for neglecting or undervaluing any important particulars connected with the structure of the human frame; and whether the bias of his mind lead him in a more especial manner to surgery, physic, or physiology, he will find here a work at once so comprehensive and practical as to defend him from exclusiveness on the one hand, and pedantry on the other.—*Monthly Journal and Retrospect of the Medical Sciences.*

We have no hesitation in recommending this treatise on anatomy as the most complete on that subject in the English language; and the only one, perhaps, in any language, which brings the state of knowledge forward to the most recent discoveries.—*The Edinburgh Medical and Surgical Journal.*

Admirably calculated to fulfil the object for which it is intended.—*Provincial Medical Journal.*

The most complete Treatise on Anatomy in the English language.—*Edinburgh Medical Journal.*

There is no work in the English language to be preferred to Dr. Quain's Elements of Anatomy.—*London Journal of Medicine.*

THE STUDENT'S TEXT-BOOK OF ANATOMY.

NEW AND IMPROVED EDITION—JUST ISSUED.

A SYSTEM OF HUMAN ANATOMY,

GENERAL AND SPECIAL.

BY ERASMUS WILSON, M.D.

FOURTH AMERICAN FROM THE LAST ENGLISH EDITION.

EDITED BY PAUL B. GODDARD, A.M., M.D.

WITH TWO HUNDRED AND FIFTY ILLUSTRATIONS.

Beautifully printed, in one large octavo volume of nearly six hundred pages.

In many, if not all the Colleges of the Union, it has become a standard text-book. This, of itself, is sufficiently expressive of its value. A work very desirable to the student; one, the possession of which will greatly facilitate his progress in the study of Practical Anatomy.—*New York Journal of Medicine.*

Its author ranks with the highest on Anatomy.—*Southern Medical and Surgical Journal.*

It offers to the student all the assistance that can be expected from such a work.—*Medical Examiner.*

The most complete and convenient manual for the student we possess.—*American Journal of Med. Science.*

In every respect this work, as an anatomical guide for the student and practitioner, merits our warmest and most decided praise.—*London Medical Gazette.*

HORNER'S ANATOMY.

***MUCH IMPROVED AND ENLARGED EDITION.*—(*Just Ready.*)**

SPECIAL ANATOMY AND HISTOLOGY.

BY WILLIAM E. HORNER, M. D.,
Professor of Anatomy in the University of Pennsylvania, &c.

EIGHTH EDITION.

EXTENSIVELY REVISED AND MODIFIED TO 1851.

In two large octavo volumes, handsomely printed, with several hundred illustrations.

This work has enjoyed a thorough and laborious revision on the part of the author, with the view of bringing it fully up to the existing state of knowledge on the subject of general and special anatomy. To adapt it more perfectly to the wants of the student, he has introduced a large number of additional wood engravings, illustrative of the objects described, while the publishers have endeavored to render the mechanical execution of the work worthy of the extended reputation which it has acquired. The demand which has carried it to an EIGHTH EDITION is a sufficient evidence of the value of the work, and of its adaptation to the wants of the student and professional reader.

NEW AND CHEAPER EDITION OF

SMITH & HORNER'S ANATOMICAL ATLAS.

AN ANATOMICAL ATLAS,

ILLUSTRATIVE OF THE STRUCTURE OF THE HUMAN BODY.

BY HENRY H. SMITH, M. D., &c.

UNDER THE SUPERVISION OF

WILLIAM E. HORNER, M. D.,
Professor of Anatomy in the University of Pennsylvania.

In one volume, large imperial octavo, with about six hundred and fifty beautiful figures.

With the view of extending the sale of this beautifully executed and complete "Anatomical Atlas," the publishers have prepared a new edition, printed on both sides of the page, thus materially reducing its cost, and enabling them to present it at a price about forty per cent. lower than former editions, while, at the same time, the execution of each plate is in no respect deteriorated, and not a single figure is omitted.

These figures are well selected, and present a complete and accurate representation of that wonderful fabric, the human body. The plan of this Atlas, which renders it so peculiarly convenient for the student, and its superb artistical execution, have been already pointed out. We must congratulate the student upon the completion of this Atlas, as it is the most convenient work of the kind that has yet appeared; and we must add, the very beautiful manner in which it is "got up" is so creditable to the country as to be flattering to our national pride.—*American Medical Journal.*

HORNER'S DISSECTOR.

THE UNITED STATES DISSECTOR;

Being a new edition, with extensive modifications, and almost re-written, of

"HORNER'S PRACTICAL ANATOMY."

In one very neat volume, royal 12mo., of 440 pages, with many illustrations on wood.

WILSON'S DISSECTOR, New Edition—(Now Ready, 1851.)

THE DISSECTOR;

OR, PRACTICAL AND SURGICAL ANATOMY.

BY ERASMUS WILSON.

MODIFIED AND RE-ARRANGED BY
PAUL BECK GODDARD, M. D.

A NEW EDITION, WITH REVISIONS AND ADDITIONS.

In one large and handsome volume, royal 12mo., with one hundred and fifteen illustrations.

In passing this work again through the press, the editor has made such additions and improvements as the advance of anatomical knowledge has rendered necessary to maintain the work in the high reputation which it has acquired in the schools of the United States as a complete and faithful guide to the student of practical anatomy. A number of new illustrations have been added, especially in the portion relating to the complicated anatomy of Hernia. In mechanical execution the work will be found superior to former editions.

WORKS BY W. B. CARPENTER, M. D.

***COMPARATIVE PHYSIOLOGY*—(*Now Ready.*)**

PRINCIPLES OF

GENERAL AND COMPARATIVE PHYSIOLOGY,

INTENDED AS AN INTRODUCTION TO THE STUDY OF

HUMAN PHYSIOLOGY;

AND AS A GUIDE TO THE PHILOSOPHICAL PURSUIT OF

NATURAL HISTORY.

FROM THE THIRD IMPROVED AND ENLARGED LONDON EDITION.

In one very large and handsome octavo volume, with several hundred beautiful illustrations.

In presenting to the American public this valuable and important work, the publishers feel that they are supplying a want which has long existed, as the now antiquated treatise of Roget, at present nearly out of print, is the only one, having pretensions to completeness, which has been accessible to the student in this country. The present work will be found fully on a level with the most advanced state of the extended science on which it treats, the author having devoted several years to the revision and improvement of his new edition, sparing no labor to ensure its completeness and accuracy. The illustrations are exceedingly numerous, and the whole is printed in the very best manner, forming one of the handsomest volumes ever issued in this country.

I recommend to your perusal a work recently published by Dr. Carpenter. It has this advantage, it is very much up to the present state of knowledge on the subject. It is written in a clear style, and is well illustrated.—*Professor Sharpey's Introductory Lecture.*

In Dr. Carpenter's work will be found the best exposition we possess of all that is furnished by comparative anatomy to our knowledge of the nervous system, as well as to the more general principles of life and organization.—*Dr. Holland's Medical Notes and Reflections.*

See Dr. Carpenter's "Principles of General and Comparative Physiology"—a work which makes me proud to think he was once my pupil.—*Dr. Elliotson's Physiology.*

CARPENTER'S ELEMENTS OF PHYSIOLOGY, New and Improved Edition—(Just Ready.)

ELEMENTS OF PHYSIOLOGY;

INCLUDING PHYSIOLOGICAL ANATOMY.

FOR THE USE OF THE MEDICAL STUDENT.

WITH NEARLY TWO HUNDRED ILLUSTRATIONS.

Second American, from the Second London Edition.

In one handsome octavo volume, of about six hundred pages.

Of his different treatises on Physiology, the present work seems to us to be best adapted to the requirements of the student, and to constitute, on this account, a good text-book for the lecturer. The author in his preface, directs attention to the copiousness and beauty of the illustrations; and they who make any remarks on the American edition, may, with great propriety, repeat the encomium.—*Bulletin of Medical Science.*

To say that it is the best manual of Physiology now before the public, would not do sufficient justice to the author.—*Buffalo Med. Journal.*

In his former works it would seem that he had exhausted the subject of Physiology. In the present, he gives the essence, as it were, of the whole.—*N. Y. Journal of Medicine.*

The best and most complete exposé of modern physiology, in one volume, extant in the English language.—*St. Louis Med. Journal.*

Those who have occasion for an elementary treatise on physiology, cannot do better than to possess themselves of the manual of Dr. Carpenter.—*Medical Examiner.*

CARPENTER'S HUMAN PHYSIOLOGY.

PRINCIPLES OF HUMAN PHYSIOLOGY,

WITH THEIR CHIEF APPLICATIONS TO

PATHOLOGY, HYGIENE, AND FORENSIC MEDICINE.

FOURTH AMERICAN EDITION, WITH EXTENSIVE ADDITIONS AND IMPROVEMENTS BY THE AUTHOR.

With Two Lithographic Plates, and 304 wood-cuts.

In one large and handsomely printed octavo volume of over seven hundred and fifty pages.

In preparing a new edition of this very popular text-book, the publishers have had it completely revised by the author, who, without materially increasing its bulk, has embodied in it all the recent investigations and discoveries in physiological science, and has rendered it in every respect on a level with the improvements of the day. Although the number of the wood-engravings has been but little increased, a considerable change will be found, many new and interesting illustrations having been introduced in place of others which were considered of minor importance, or which the advance of science had shown to be imperfect, while the plates have been altered and redrawn under the supervision of the author by a competent London artist. In passing the volume through the press in this country, the services of a professional gentleman have been secured, in order to insure the accuracy so necessary to a scientific work. Notwithstanding these improvements, the price of the volume is maintained at its former moderate rate.

In recommending this work to their classes, Professors of Physiology can rely on their being always able to procure editions brought thoroughly up with the advance of science.

DUNGLISON'S PHYSIOLOGY.

New and much Improved Edition.—(Just Issued.)

HUMAN PHYSIOLOGY.

BY ROBLEY DUNGLISON, M. D.,

Professor of the Institutes of Medicine in the Jefferson Medical College, Philadelphia, etc. etc.

SEVENTH EDITION.

Thoroughly revised and extensively modified and enlarged,

WITH NEARLY FIVE HUNDRED ILLUSTRATIONS.

In two large and handsomely printed octavo volumes, containing nearly 1450 pages.

On no previous revision of this work has the author bestowed more care than on the present, it having been subjected to an entire scrutiny, not only as regards the important matters of which it treats, but also the language in which they are conveyed; and on no former occasion has he felt as satisfied with his endeavors to have the work on a level with the existing state of the science. Perhaps at no time in the history of physiology have observers been more numerous, energetic, and discriminating than within the last few years. Many modifications of fact and inference have consequently taken place, which it has been necessary for the author to record, and to express his views in relation thereto. On the whole subject of physiology proper, as it applies to the functions executed by the different organs, the present edition, the author flatters himself, will therefore be found to contain the views of the most distinguished physiologists of all periods.

The amount of additional matter contained in this edition may be estimated from the fact that the mere list of authors referred to in its preparation alone extends over nine large and closely printed pages. The number of illustrations has been largely increased, the present edition containing four hundred and seventy-four, while the last had but three hundred and sixty-eight; while, in addition to this, many new and superior wood-cuts have been substituted for those which were not deemed sufficiently accurate or satisfactory. The mechanical execution of the work has also been improved in every respect, and the whole is confidently presented as worthy the great and continued favor which it has so long received from the profession.

It has long since taken rank as one of the medical classics of our language. To say that it is by far the best text-book of physiology ever published in this country, is but echoing the general testimony of the profession. —*N. Y. Journal of Medicine.*

The most full and complete system of Physiology in our language.—*Western Lancet.*

The most complete and satisfactory system of Physiology in the English language.—*Amer. Med. Journal.*

The best work of the kind in the English language.—*Silliman's Journal.*

We have, on two former occasions, brought this excellent work under the notice of our readers, and we have now only to say that, instead of falling behind in the rapid march of physiological science, each edition brings it nearer to the van.—*British and Foreign Medical Review.*

A review of such a well-known work would be out of place at the present time. We have looked over it, and find, what we knew would be the case, that Dr. Dunglison has kept pace with the science to which he has devoted so much study, and of which he is one of the living ornaments. We recommend the work to the medical student as a valuable text-book, and to all inquirers into Natural Science, as one which will well and delightfully repay perusal.—*The New Orleans Medical and Surgical Journal.*

KIRKES AND PAGET'S PHYSIOLOGY.—(Lately Issued.)

A MANUAL OF PHYSIOLOGY,

FOR THE USE OF STUDENTS.

BY WILLIAM SENHOUSE KIRKES, M. D.,

ASSISTED BY JAMES PAGET,

Lecturer on General Anatomy and Physiology in St. Bartholomew's Hospital.

In one handsome volume, royal 12mo., of 550 pages, with 118 wood-cuts.

An excellent work, and for students one of the best within reach.—*Boston Medical and Surgical Journal.*

One of the best little books on Physiology which we possess.—*Braithwaite's Retrospect.*

Particularly adapted to those who desire to possess a concise digest of the facts of Human Physiology.—*British and Foreign Med.-Chirurg. Review.*

One of the best treatises which can be put into the hands of the student.—*London Medical Gazette.*

We conscientiously recommend it as an admirable "Handbook of Physiology."—*London Jour. of Medicine.*

SOLLY ON THE BRAIN.

THE HUMAN BRAIN; ITS STRUCTURE, PHYSIOLOGY, AND DISEASES.

WITH A DESCRIPTION OF THE TYPICAL FORM OF THE BRAIN IN THE ANIMAL KINGDOM.

BY SAMUEL SOLLY, F. R. S., &c.,

Senior Assistant Surgeon to the St. Thomas' Hospital, &c.

From the Second and much Enlarged London Edition. In one octavo volume, with 120 Wood-cuts.

HARRISON ON THE NERVES.—An Essay towards a correct theory of the Nervous System. In one octavo volume, 292 pages.

MATTEUCCI ON LIVING BEINGS.—Lectures on the Physical Phenomena of Living Beings. Edited by Pereira. In one neat royal 12mo. volume, extra cloth, with cuts—388 pages.

ROGET'S PHYSIOLOGY.—A Treatise on Animal and Vegetable Physiology, with over 400 illustrations on wood. In two octavo volumes, cloth.

ROGET'S OUTLINES.—Outlines of Physiology and Phrenology. In one octavo volume, cloth—516 pages.

ON THE CONNECTION BETWEEN PHYSIOLOGY AND INTELLECTUAL SCIENCE. In one 12mo. volume, paper, price 25 cents.

TODD & BOWMAN'S PHYSIOLOGY.—Physiological Anatomy and Physiology of Man. With numerous handsome wood-cuts. Parts I, II, and III, in one 8vo. volume, 552 pp. Part IV will complete the work.

WILLIAMS' PRINCIPLES—New and Enlarged Edition.

PRINCIPLES OF MEDICINE;

Comprising General Pathology and Therapeutics,

AND A BRIEF GENERAL VIEW OF

ETIOLOGY, NOSOLOGY, SEMEIOLOGY, DIAGNOSIS, PROGNOSIS, AND HYGIENICS.

BY CHARLES J. B. WILLIAMS, M. D., F. R. S.,

Fellow of the Royal College of Physicians, &c.

EDITED, WITH ADDITIONS, BY MEREDITH CLYMER, M. D.,

Consulting Physician to the Philadelphia Hospital, &c. &c.

THIRD AMERICAN, FROM THE SECOND AND ENLARGED LONDON EDITION.

In one octavo volume, of 440 pages.

BILLING'S PRINCIPLES, NEW EDITION—(Just Issued.)

THE PRINCIPLES OF MEDICINE.

BY ARCHIBALD BILLING, M. D., &c.

Second American from the Fifth and Improved London Edition.

In one handsome octavo volume, extra cloth, 250 pages.

We can strongly recommend Dr. Billing's "Principles" as a code of instruction which should be constantly present to the mind of every well-informed and philosophical practitioner of medicine.—*Lancet.*

MANUALS ON THE BLOOD AND URINE.

In two handsome volumes royal 12mo., extra cloth.

With numerous Illustrations on Stone and Wood.

VOLUME I, OF FOUR HUNDRED AND SIXTY LARGE PAGES, CONTAINS

I. A Practical Manual on the Blood and Secretions of the Human Body. BY JOHN WILLIAM GRIFFITH, M. D., &c.

II. On the Analysis of the Blood and Urine in health and disease, and on the treatment of Urinary diseases. BY G. OWEN REESE, M. D., F. R. S., &c. &c.

III. A Guide to the Examination of the Urine in health and disease. BY ALFRED MARKWICK.

VOLUME II. NOW READY, CONSISTS OF

I. Urinary Deposits, their Diagnosis, Pathology, and Therapeutical Indications. By GOLDING BIRD, M. D. A new American from the third and improved London edition. With over sixty illustrations.

II. Renal Affections, their Diagnosis and Pathology. By CHARLES FRICK, M. D. With illustrations.

Either of these volumes may be had separately, as also BIRD ON URINARY DEPOSITS, and FRICK ON RENAL AFFECTIONS, each in one handsome 12mo. volume, extra cloth.

The importance now attached to the Diagnosis of the Blood and Urine, and the rapid increase of our knowledge respecting the pathological conditions of the fluids of the human body, have induced the publishers to present these manuals in a cheap and convenient form, embracing the results of the most recent observers in a practical point of view. On the subject of the chemical and microscopical examinations of these fluids, they would also call the attention of the student to BOWMAN'S MEDICAL CHEMISTRY, and SIMON'S ANIMAL CHEMISTRY. See p. 30.

OF THE CAUSES, NATURE, AND TREATMENT OF PALSY AND APOPLEXY,

And of the Forms, Seats, Complications, and Morbid Relations of Paralytic and Apoplectic Diseases.

BY JAMES COPLAND, M. D., F. R. S., &c.

In one volume. (Just Issued.)

THE PATHOLOGICAL ANATOMY OF THE HUMAN BODY.

BY JULIUS VOGEL, M. D., &c.

Translated from the German, with Additions,

BY GEORGE E. DAY, M. D., &c.

ILLUSTRATED BY UPWARDS OF ONE HUNDRED FIGURES, PLAIN AND COLORED.

In one neat octavo volume.

ABERCROMBIE ON THE BRAIN.—Pathological and Practical Researches on Diseases of the Brain and Spinal Cord. A new edition, in one small 8vo. volume, pp. 324.

BURROWS ON CEREBRAL CIRCULATION.—On Disorders of the Cerebral Circulation, and on the Connection between Affections of the Brain and Diseases of the Heart. In one 8vo. vol., with colored plates, pp. 216.

BLAKISTON ON THE CHEST.—Practical Observations on certain Diseases of the Chest, and on the Principles of Auscultation. In one volume, 8vo., pp. 384.

HASSE'S PATHOLOGICAL ANATOMY.—An Anatomical Description of the Diseases of Respiration and Circulation. Translated and Edited by Swaine. In one volume, 8vo., pp. 379.

HUGHES ON THE LUNGS AND HEART.—Clinical Introduction to the Practice of Auscultation, and other modes of Physical Diagnosis. In one 12mo. volume, with a plate, pp. 270.

DUNGLISON'S PRACTICE OF MEDICINE.

ENLARGED AND IMPROVED EDITION.

THE PRACTICE OF MEDICINE.

A TREATISE ON

SPECIAL PATHOLOGY AND THERAPEUTICS.

THIRD EDITION.

BY ROBLEY DUNGLISON, M. D.,

Professor of the Institutes of Medicine in the Jefferson Medical College; Lecturer on Clinical Medicine, &c.

In two large octavo volumes, of fifteen hundred pages.

The student of medicine will find, in these two elegant volumes, a mine of facts, a gathering of precepts and advice from the world of experience, that will nerve him with courage, and faithfully direct him in his efforts to relieve the physical sufferings of the race.—*Boston Medical and Surgical Journal.*

Upon every topic embraced in the work the latest information will be found carefully posted up. *Medical Examiner.*

It is certainly the most complete treatise of which we have any knowledge. There is scarcely a disease which the student will not find noticed.—*Western Journal of Medicine and Surgery.*

One of the most elaborate treatises of the kind we have.—*Southern Medical and Surg. Journal.*

A New Work. Now Ready.

DISEASES OF THE HEART, LUNGS, AND APPENDAGES;

THEIR SYMPTOMS AND TREATMENT.

BY W. H. WALSHE, M.D.,

Professor of the Principles and Practice of Medicine in University College, London, &c.

In one handsome volume, large royal 12mo.

The author's design in this work has been to include within the compass of a moderate volume, all really essential facts bearing upon the symptoms, physical signs, and treatment of pulmonary and cardiac diseases. To accomplish this the first part of the work is devoted to the description of the various modes of physical diagnosis, auscultation, percussion, mensuration, &c., which are fully and clearly, but succinctly entered into, both as respects their theory and clinical phenomena. In the second part, the various diseases of the heart, lungs, and great vessels are considered in regard to symptoms, physical signs and treatment, with numerous references to cases. The eminence of the author is a guarantee to the practitioner and student that the work is one of practical utility in facilitating the diagnosis and treatment of a large, obscure and important class of diseases.

THE GREAT MEDICAL LIBRARY.

THE CYCLOPEDIA OF PRACTICAL MEDICINE;

COMPRISING

Treatises on the Nature and Treatment of Diseases, Materia Medica, and Therapeutics, Diseases of Women and Children, Medical Jurisprudence, &c. &c.

EDITED BY

JOHN FORBES, M. D., F. R. S., ALEXANDER TWEEDIE, M. D., F. R. S.
AND JOHN CONNOLLY, M. D.

Revised, with Additions,

BY ROBLEY DUNGLISON, M. D.

THIS WORK IS NOW COMPLETE, AND FORMS FOUR LARGE SUPER-ROYAL OCTAVO VOLUMES,

Containing Thirty-two Hundred and Fifty-four unusually large Pages in Double Columns, Printed on Good Paper, with a new and clear type.

THE WHOLE WELL AND STRONGLY BOUND WITH RAISED BANDS AND DOUBLE TITLES.

This work contains no less than FOUR HUNDRED AND EIGHTEEN DISTINCT TREATISES,

By Sixty-eight distinguished Physicians.

The most complete work on Practical Medicine extant; or, at least, in our language.—*Buffalo Medical and Surgical Journal.*

For reference, it is above all price to every practitioner.—*Western Lancet.*

One of the most valuable medical publications of the day—as a work of reference it is invaluable.—*Western Journal of Medicine and Surgery.*

It has been to us, both as learner and teacher, a work for ready and frequent reference, one in which modern English medicine is exhibited in the most advantageous light.—*Medical Examiner.*

We rejoice that this work is to be placed within the reach of the profession in this country, it being unquestionably one of very great value to the practitioner. This estimate of it has not been formed from a hasty examination, but after an intimate acquaintance derived from frequent consultation of it during the past nine or ten years. The editors are practitioners of established reputation, and the list of contributors embraces many of the most eminent professors and teachers of London, Edinburgh, Dublin, and Glasgow. It is, indeed, the great merit of this work that the principal articles have been furnished by practitioners who have not only devoted especial attention to the diseases about which they have written, but have also enjoyed opportunities for an extensive practical acquaintance with them.—and whose reputation carries the assurance of their competency justly to appreciate the opinions of others, while it stamps their own doctrines with high and just authority.—*American Medical Journal.*

WATSON'S PRACTICE OF MEDICINE—New Edition.

LECTURES ON THE

PRINCIPLES AND PRACTICE OF PHYSIC.

BY THOMAS WATSON, M. D., &c. &c.

Third American, from the last London Edition.

REVISED, WITH ADDITIONS, BY D. FRANCIS CONDIE, M. D.,
Author of "A Treatise on the Diseases of Children," &c.

IN ONE OCTAVO VOLUME,

Of nearly ELEVEN HUNDRED LARGE PAGES, strongly bound with raised bands.

To say that it is the very best work on the subject now extant, is but to echo the sentiment of the medical press throughout the country.—*N. O. Medical Journal.*

Of the text-books recently republished Watson is very justly the principal favorite.—*Holmes' Report to Nat. Med. Assoc.*

By universal consent the work ranks among the very best text-books in our language.—*Ill. and Ind. Med. Journal.*

Regarded on all hands as one of the very best, if not the very best, systematic treatise on practical medicine extant—*St. Louis Med. Journal.*

Confessedly one of the very best works on the principles and practice of physic in the English or any other language.—*Med. Examiner.*

As a text-book it has no equal; as a compendium of pathology and practice no superior.—*N. Y. Annalist.*

We know of no work better calculated for being placed in the hands of the student, and for a text book, on every important point the author seems to have posted up his knowledge to the day.—*Amer. Med. Journal.*

One of the most practically useful books that ever was presented to the student.—*N. Y. Med. Journal.*

WILSON ON THE SKIN.

ON DISEASES OF THE SKIN.

BY ERASMUS WILSON, F. R. S.,
Author of "Human Anatomy," &c.

SECOND AMERICAN FROM THE SECOND LONDON EDITION.

In one neat octavo volume, extra cloth, 440 pages.

Also, to be had with eight beautifully colored steel plates.
Also, the plates sold separate, in boards.

Much Enlarged Edition of BARTLETT ON FEVERS.

THE HISTORY, DIAGNOSIS, AND TREATMENT OF THE

FEVERS OF THE UNITED STATES.

BY ELISHA BARTLETT, M. D.,

In one octavo volume of 550 pages, beautifully printed and strongly bound.

CLYMER AND OTHERS ON FEVERS.

FEVERS; THEIR DIAGNOSIS, PATHOLOGY, AND TREATMENT.

PREPARED AND EDITED, WITH LARGE ADDITIONS,
FROM THE ESSAYS ON FEVER IN TWEEDIE'S LIBRARY OF PRACTICAL MEDICINE,

BY MEREDITH CLYMER, M.D.

In one octavo volume of six hundred pages.

BENEDICT'S CHAPMAN.—Compendium of Chapman's Lectures on the Practice of Medicine. One neat volume, 8vo., pp. 258.

BUDD ON THE LIVER.—On Diseases of the Liver. In one very neat 8vo. vol., with colored plates and wood-cuts, pp. 392

CHAPMAN'S LECTURES.—Lectures on Fevers, Dropsy, Gout, Rheumatism, &c. &c. In one neat 8vo. volume, pp. 450

ESQUIROL ON INSANITY.—Mental Maladies, considered in relation to Medicine, Hygiene, and Medical Jurisprudence. Translated by E. K. Hunt, M. D., &c. In one 8vo. volume, pp. 496.

THOMSON ON THE SICK ROOM.—Domestic management of the sick Room, necessary in aid of Medical Treatment for the cure of Diseases. Edited by R. E. Griffith, M. D. In one large royal 12mo. volume, with wood-cuts, pp. 360.

HOPE ON THE HEART.—A Treatise on the Diseases of the Heart and Great Vessels. Edited by Pennock. In one volume, 8vo., with plates, pp. 572.

LALLEMAND ON SPERMATORRHŒA.—The Causes, Symptoms, and Treatment of Spermatorrhœa. Translated and Edited by Henry J. McDougal. In one volume, 8vo., pp. 320.

PHILIPS ON SCROFULA.—Scrofula: its Nature, its Prevalence, its Causes, and the Principles of its Treatment. In one volume, 8vo., with a plate, pp. 350.

WHITEHEAD ON ABORTION, &c.—The Causes and Treatment of Abortion and Sterility; being the Result of an Extended Practical Inquiry into the Physiological and Morbid Conditions of the Uterus. In one volume, 8vo., pp. 368.

WILLIAMS ON RESPIRATORY ORGANS.—A Practical Treatise on Diseases of the Respiratory Organs; including Diseases of the Larynx, Trachea, Lungs, and Pleuræ. With numerous Additions and Notes by M. Clymer, M. D. With wood-cuts. In one octavo volume, pp. 508

DAY ON OLD AGE.—A Practical Treatise on the Domestic Management and more important Diseases of Advanced Life. With an Appendix on a new and successful mode of treating Lumbago and other forms of Chronic Rheumatism. 1 vol. 8vo., pp. 226.

MEIGS ON FEMALES, New and Improved Edition—(Just Issued.)

WOMAN; HER DISEASES AND THEIR REMEDIES;

A SERIES OF LETTERS TO HIS CLASS.

BY C. D. MEIGS, M. D.,

Professor of Midwifery and Diseases of Women and Children in the Jefferson Medical College of Philadelphia, &c. &c.

In one large and beautifully printed octavo volume, of nearly seven hundred large pages.

"I am happy to offer to my Class an enlarged and amended edition of my Letters on the Diseases of Women; and I avail myself of this occasion to return my heartfelt thanks to them, and to our brethren generally, for the flattering manner in which they have accepted this fruit of my labor."—PREFACE.

The value attached to this work by the profession is sufficiently proved by the rapid exhaustion of the first edition, and consequent demand for a second. In preparing this the author has availed himself of the opportunity thoroughly to revise and greatly to improve it. The work will therefore be found completely brought up to the day, and in every way worthy of the reputation which it has so immediately obtained.

Professor Meigs has enlarged and amended this great work, for such it unquestionably is, having passed the ordeal of criticism at home and abroad, but been improved thereby; for in this new edition the author has introduced real improvements, and increased the value and utility of the book immeasurably. It presents so many novel, bright and sparkling thoughts; such an exuberance of new ideas on almost every page, that we confess ourselves to have become enamored with the book and its author; and cannot withhold our congratulations from our Philadelphia confreres, that such a teacher is in their service. We regret that our limits will not allow of a more extended notice of this work, but must content ourselves with thus commending it as worthy of diligent perusal by physicians as well as students, who are seeking to be thoroughly instructed in the important practical subjects of which it treats.—*N. Y. Med. Gazette.*

It contains a vast amount of practical knowledge, by one who has accurately observed and retained the experience of many years, and who tells the result in a free, familiar, and pleasant manner.—*Dublin Quarterly Journal.*

There is an off-hand fervor, a glow and a warm-heartedness infecting the effort of Dr. Meigs, which is entirely captivating, and which absolutely hurries the reader through from beginning to end. Besides, the book teems with solid instruction, and it shows the very highest evidence of ability, viz., the clearness with which the information is presented. We know of no better test of one's understanding a subject than the evidence of the power of lucidly explaining it. The most elementary, as well as the obscurest subjects, under the pencil of Prof. Meigs, are isolated and made to stand out in such bold relief, as to produce distinct impressions upon the mind and memory of the reader.—*The Charleston Medical Journal.*

The merits of the first edition of this work were so generally appreciated, and with such a high degree of favor by the medical profession throughout the Union, that we are not surprised in seeing a second edition of it. It is a standard work on the diseases of females, and in many respects is one of the very best of its kind in the English language. Upon the appearance of the first edition, we gave the work a cordial reception, and spoke of it in the warmest terms of commendation. Time has not changed the favorable estimate we placed upon it, but has rather increased our convictions of its superlative merits. But we do not now deem it necessary to say more than to commend this work, on the diseases of women, and the remedies for them, to the attention of those practitioners who have not supplied themselves with it. The most select library would be imperfect without it.—*The Western Journal of Medicine and Surgery.*

He is a bold thinker, and possesses more originality of thought and style than almost any American writer on medical subjects. If he is not an elegant writer, there is at least a freshness—a raciness in his mode of expressing himself—that cannot fail to draw the reader after him, even to the close of his work: you cannot nod over his pages; he stimulates rather than narcotises your senses, and the reader cannot lay aside these letters when once he enters into their merits. This, the second edition, is much amended and enlarged, and affords abundant evidence of the author's talents and industry.—*N. O. Medical and Surgical Journal.*

The practical writings of Dr. Meigs are second to none.—*The N. Y. Journal of Medicine.*

The excellent practical directions contained in this volume give it great utility, which we trust will not be lost upon our older colleagues; with some condensation, indeed, we should think it well adapted for translation into German.—*Zeitschrift fur die Gesammte Medecin.*

NEW AND IMPROVED EDITION—(Just Issued.)

A TREATISE ON THE DISEASES OF FEMALES,

AND ON THE SPECIAL HYGIENE OF THEIR SEX.

BY COLOMBAT DE L'ISERE, M. D.

TRANSLATED, WITH MANY NOTES AND ADDITIONS, BY C. D. MEIGS, M. D.

SECOND EDITION, REVISED AND IMPROVED.

In one large volume, octavo, of seven hundred and twenty pages, with numerous wood-cuts.

We are satisfied it is destined to take the front rank in this department of medical science. It is in fact a complete exposition of the opinions and practical methods of all the celebrated practitioners of ancient and modern times.—*New York Journ. of Medicine.*

ASHWELL ON THE DISEASES OF FEMALES.

A PRACTICAL TREATISE ON THE DISEASES PECULIAR TO WOMEN.

ILLUSTRATED BY CASES DERIVED FROM HOSPITAL AND PRIVATE PRACTICE.

BY SAMUEL ASHWELL, M. D. WITH ADDITIONS BY PAUL BECK GODDARD, M. D.

Second American edition. In one octavo volume, of 520 pages.

One of the very best works ever issued from the press on the Diseases of Females.—*Western Lancet.*

ON THE CAUSES AND TREATMENT OF ABORTION AND STERILITY. By James Whitehead, M. D., &c. In one volume octavo, of about three hundred and seventy-five pages.

NEW AND IMPROVED EDITION—(Lately Issued.)

THE DISEASES OF FEMALES.

INCLUDING THOSE OF PREGNANCY AND CHILDBED.

BY FLEETWOOD CHURCHILL, M. D., M. R. I. A.,

Author of "Theory and Practice of Midwifery," "Diseases of Females," &c.

A New American Edition (The Fifth), Revised by the Author.

WITH THE NOTES OF ROBERT M. HUSTON, M. D.

In one large and handsome octavo volume of 632 pages, with wood-cuts.

To indulge in panegyric, when announcing the fifth edition of any acknowledged medical authority, were to attempt to "gild refined gold." The work announced above, has too long been honored with the term "classical" to leave any doubt as to its true worth, and we content ourselves with remarking, that the author has carefully retained the notes of Dr. Huston, who edited the former American edition, thus really enhancing the value of the work, and paying a well merited compliment. All who wish to be "posted up" on all that relates to the diseases peculiar to the wife, the mother, or the maid, will hasten to secure a copy of this most admirable treatise.—*The Ohio Medical and Surgical Journal.*

We know of no author who deserves that approbation, on "the diseases of females," to the same extent that Dr. Churchill does. His, indeed, is the only thorough treatise we know of on the subject, and it may be commended to practitioners and students as a masterpiece in its particular department. The former editions of this work have been commended strongly in this journal, and they have won their way to an extended, and a well deserved popularity. This fifth edition, before us, is well calculated to maintain Dr. Churchill's high reputation. It was revised and enlarged by the author, for his American publishers, and it seems to us, that there is scarcely any species of desirable information on its subjects, that may not be found in this work. —*The Western Journal of Medicine and Surgery.*

We are gratified to announce a new and revised edition of Dr. Churchill's valuable work on the diseases of females. We have ever regarded it as one of the very best works on the subjects embraced within its scope, in the English language; and the present edition, enlarged and revised by the author, renders it still more entitled to the confidence of the profession. The valuable notes of Prof. Huston have been retained, and contribute, in no small degree, to enhance the value of the work. It is a source of congratulation that the publishers have permitted the author to be, in this instance, his own editor, thus securing all the revision which an author alone is capable of making.—*The Western Lancet.*

As a comprehensive manual for students, or a work of reference for practitioners, we only speak with common justice when we say that it surpasses any other that has ever issued on the same subject from the British press.—*The Dublin Quarterly Journal.*

Churchill's Monographs on Females.—(Just Issued.)

ESSAYS ON THE PUERPERAL FEVER, AND OTHER DISEASES

PECULIAR TO WOMEN.

SELECTED FROM THE WRITINGS OF BRITISH AUTHORS PREVIOUS TO THE CLOSE OF THE EIGHTEENTH CENTURY.

Edited by FLEETWOOD CHURCHILL, M. D., M. R. I. A.,

Author of "Treatise on the Diseases of Females," &c.

In one neat octavo volume, of about four hundred and fifty pages.

To these papers Dr. Churchill has appended notes, embodying whatever information has been laid before the profession since their authors' time. He has also prefixed to the essays on puerperal fever, which occupy the larger portion of the volume, an interesting historical sketch of the principal epidemics of that disease. The whole forms a very valuable collection of papers by professional writers of eminence, on some of the most important accidents to which the puerperal female is liable.—*American Journal of Medical Sciences.*

***MUCH ENLARGED AND IMPROVED EDITION*—(Just Issued.)**

A PRACTICAL TREATISE ON

INFLAMMATION OF THE UTERUS AND ITS APPENDAGES,

And on Ulceration and Induration of the Neck of the Uterus.

BY HENRY BENNETT, M. D.,

Obstetric Physician to the Western Dispensary.

Second Edition, much enlarged.

In one neat octavo volume of 350 pages, with wood-cuts.

This edition is so enlarged as to constitute a new work. It embraces the study of inflammation in all the uterine organs, and its influence in the production of displacements and of the reputed functional diseases of the uterus.

Few works issue from the medical press which are at once original and sound in doctrine; but such, we feel assured, is the admirable treatise now before us. The important practical precepts which the author inculcates are all rigidly deduced from facts. . . . Every page of the book is good, and eminently practical. So far as we know and believe, it is the best work on the subject on which it treats.—*Monthly Journal of Medical Science.*

A TREATISE ON THE DISEASES OF FEMALES.

BY W. P. DEWEES, M. D.

NINTH EDITION.

In one volume, octavo. 532 pages, with plates.

MEIGS ON CHILDREN—Just Issued.

OBSERVATIONS ON CERTAIN OF THE DISEASES OF YOUNG CHILDREN.

BY CHARLES D. MEIGS, M. D.,

Professor of Midwifery and of the Diseases of Women and Children in the Jefferson Medical College of Philadelphia, &c. &c.

In one handsome octavo volume of 214 pages.

While this work is not presented to the profession as a systematic and complete treatise on Infantile disorders, the importance of the subjects treated of, and the interest attaching to the views and opinions of the distinguished author must command for it the attention of all who are called upon to treat this interesting class of diseases.

It puts forth no claims as a systematic work, but contains an amount of valuable and useful matter, scarcely to be found in the same space in our home literature. It can not but prove an acceptable offering to the profession at large.—*N. Y. Journal of Medicine.*

The work before us is undoubtedly a valuable addition to the fund of information which has already been treasured up on the subjects in question. It is practical, and therefore eminently adapted to the general practitioner. Dr. Meigs' works have the same fascination which belongs to himself.—*Medical Examiner.*

This is a most excellent work on the obscure diseases of childhood, and will afford the practitioner and student of medicine much aid in their diagnosis and treatment.—*The Boston Medical and Surgical Journal.*

We take much pleasure in recommending this excellent little work to the attention of medical practitioners. It deserves their attention, and after they commence its perusal, they will not willingly abandon it, until they have mastered its contents. We read the work while suffering from a carbuncle, and its fascinating pages often beguiled us into forgetfulness of agonizing pain. May it teach others to relieve the afflictions of the young.—*The Western Journal of Medicine and Surgery.*

All of which topics are treated with Dr. Meigs' acknowledged ability and original diction. The work is neither a systematic nor a complete treatise upon the diseases of children, but a fragment which may be consulted with much advantage.—*Southern Medical and Surgical Journal.*

NEW WORK BY DR. CHURCHILL.

ON THE DISEASES OF INFANTS AND CHILDREN.

BY FLEETWOOD CHURCHILL, M. D., M. R. I. A.,

Author of "Theory and Practice of Midwifery," "Diseases of Females," &c.

In one large and handsome octavo volume of over 600 pages.

From Dr. Churchill's known ability and industry, we were led to form high expectations of this work; nor were we deceived. Its learned author seems to have set no bounds to his researches in collecting information which, with his usual systematic address, he has disposed of in the most clear and concise manner, so as to lay before the reader every opinion of importance bearing upon the subject under consideration.

We regard this volume as possessing more claims to completeness than any other of the kind with which we are acquainted. Most cordially and earnestly, therefore, do we commend it to our professional brethren, and we feel assured that the stamp of their approbation will in due time be impressed upon it.

After an attentive perusal of its contents, we hesitate not to say, that it is one of the most comprehensive ever written upon the diseases of children, and that, for copiousness of reference, extent of research, and perspicuity of detail, it is scarcely to be equalled, and not to be excelled in any language.—*Dublin Quarterly Journal.*

The present volume will sustain the reputation acquired by the author from his previous works. The reader will find in it full and judicious directions for the management of infants at birth, and a compendious, but clear, account of the diseases to which children are liable, and the most successful mode of treating them. We must not close this notice without calling attention to the author's style, which is perspicuous and polished to a degree, we regret to say, not generally characteristic of medical works. We recommend the work of Dr. Churchill most cordially, both to students and practitioners, as a valuable and reliable guide in the treatment of the diseases of children.—*Am. Journ. of the Med. Sciences.*

After this meagre, and we know, very imperfect notice, of Dr. Churchill's work, we shall conclude by saying, that it is one that cannot fail from its copiousness, extensive research, and general accuracy, to exalt still higher the reputation of the author in this country. The American reader will be particularly pleased to find that Dr. Churchill has done full justice throughout his work, to the various American authors on this subject. The names of Dewees, Eberle, Condie, and Stewart, occur on nearly every page, and these authors are constantly referred to by the author in terms of the highest praise, and with the most liberal courtesy.—*The Medical Examiner.*

We know of no work on this department of Practical Medicine which presents so candid and unprejudiced a statement or posting up of our actual knowledge as this.—*N. Y. Journal of Medicine.*

Its claims to merit, both as a scientific and practical work, are of the highest order. Whilst we would not elevate it above every other treatise on the same subject, we certainly believe that very few are equal to it, and none superior.—*Southern Med. and Surg. Journal.*

New and Improved Edition—(Lately Issued.)

A PRACTICAL TREATISE ON THE
DISEASES OF CHILDREN.

BY D. FRANCIS CONDIE, M. D.,
Fellow of the College of Physicians, &c. &c.

Third edition, revised and augmented. In one large volume, 8vo., of over 700 pages.

In the preparation of a third edition of the present treatise, every portion of it has been subjected to a careful revision. A new chapter has been added on Epidemic Meningitis, a disease which, although not confined to children, occurs far more frequently in them, than in adults. In the other chapters of the work, all the more important facts that have been developed since the appearance of the last edition, in reference to the nature, diagnosis, and treatment of the several diseases of which they treat, have been incorporated. The great object of the author has been to present, in each succeeding edition, as full and connected a view as possible of the actual state of the pathology and therapeutics of those affections which most usually occur between birth and puberty.

To the present edition there is appended a list of the several works and essays quoted or referred to in the body of the work, or which have been consulted in its preparation or revision.

Every important fact that has been verified or developed since the publication of the previous edition, either in relation to the nature, diagnosis, or treatment of the diseases of children, have been arranged and incorporated into the body of the work; thus posting up to date, to use a counting-house phrase, all the valuable facts and useful information on the subject. To the American practitioner, Dr. Condie's remarks on the diseases of children will be invaluable, and we accordingly advise those who have failed to read this work to procure a copy, and make themselves familiar with its sound principles.—*The New Orleans Medical and Surgical Journal.*

We feel persuaded that the American Medical profession will soon regard it, not only as a very good, but as the VERY BEST "Practical Treatise on the Diseases of Children."—*American Medical Journal.*

We pronounced the first edition to be the best work on the Diseases of Children in the English language, and, notwithstanding all that has been published, we still regard it in that light.—*Medical Examiner.*

From Professor Wm. P. Johnston, Washington, D. C.

I make use of it as a text-book, and place it invariably in the hands of my private pupils.

From Professor D. Humphreys Storer, of Boston.

I consider it to be the best work on the Diseases of Children we have access to, and as such recommend it to all who ever refer to the subject.

From Professor M. M. Pallen, of St Louis.

I consider it the best treatise on the Diseases of Children that we possess, and as such have been in the habit of recommending it to my classes.

Dr. Condie's scholarship, acumen, industry, and practical sense are manifested in this, as in all his numerous contributions to science.—*Dr. Holmes's Report to the American Medical Association.*

Taken as a whole, in our judgment, Dr. Condie's Treatise is the one from the perusal of which the practitioner in this country will rise with the greatest satisfaction.—*Western Journal of Medicine and Surgery.*

One of the best works upon the Diseases of Children in the English language.—*Western Lancet.*

We feel assured from actual experience that no physician's library can be complete without a copy of this work.—*N. Y. Journal of Medicine*

Perhaps the most full and complete work now before the profession of the United States; indeed, we may say in the English language. It is vastly superior to most of its predecessors.—*Transylvania Med. Journal.*

A veritable pædiatric encyclopædia, and an honor to American medical literature.—*Ohio Medical and Surgical Journal.*

WEST ON DISEASES OF CHILDREN—(*Now Complete.*)

LECTURES ON THE
DISEASES OF INFANCY AND CHILDHOOD.

BY CHARLES WEST, M. D.,
Senior Physician to the Royal Infirmary for Children, &c. &c.

In one volume, octavo.

Every portion of these lectures is marked by a general accuracy of description, and by the soundness of the views set forth in relation to the pathology and therapeutics of the several maladies treated of. The lectures on the diseases of the respiratory apparatus, about one-third of the whole number, are particularly excellent, forming one of the fullest and most able accounts of these affections, as they present themselves during infancy and childhood, in the English language. The history of the several forms of phthisis during these periods of existence, with their management, will be read by all with deep interest.—*The American Journal of the Medical Sciences.*

The Lectures of Dr. West, originally published in the London Medical Gazette, form a most valuable addition to this branch of practical medicine. For many years physician to the Children's Infirmary, his opportunities for observing their diseases have been most extensive, no less than 14,000 children having been brought under his notice during the past nine years. These have evidently been studied with great care, and the result has been the production of the very best work in our language, so far as it goes, on the diseases of this class of our patients. The symptomatology and pathology of their diseases are especially exhibited most clearly; and we are convinced that no one can read with care these lectures without deriving from them instruction of the most important kind.—*Charleston Med. Journal.*

A TREATISE
ON THE PHYSICAL AND MEDICAL TREATMENT OF CHILDREN.

BY W. P. DEWEES, M. D.

Ninth edition. In one volume, octavo. 548 pages.

***A NEW WORK*—(*Lately Issued.*)**

OBSTETRICS:

THE SCIENCE AND THE ART.

BY CHARLES D. MEIGS, M. D.,

Professor of Midwifery and the Diseases of Women and Children in the Jefferson Medical College, Philadelphia, &c. &c.

With One Hundred and Twenty Illustrations.

In one beautifully printed octavo volume, of six hundred and eighty large pages.

As an elementary treatise—concise, but, withal, clear and comprehensive—we know of no one better adapted for the use of the student; while the young practitioner will find in it a body of sound doctrine, and a series of excellent practical directions, adapted to all the conditions of the various forms of labor and their results, which he will be induced, we are persuaded, again and again to consult, and always with profit.

It has seldom been our lot to peruse a work upon the subject, from which we have received greater satisfaction, and which we believe to be better calculated to communicate to the student correct and definite views upon the several topics embraced within the scope of its teachings.—*American Journal of the Medical Sciences.*

We are acquainted with no work on midwifery of greater practical value.—*Boston Medical and Surgical Journal.*

Worthy the reputation of its distinguished author.—*Medical Examiner.*

We most sincerely recommend it, both to the student and practitioner, as a more complete and valuable work on the Science and Art of Midwifery, than any of the numerous reprints and American editions of European works on the same subject.—*N. Y. Annalist.*

We have, therefore, great satisfaction in bringing under our reader's notice the matured views of the highest American authority in the department to which he has devoted his life and talents.—*London Medical Gazette.*

An author of established merit, a professor of Midwifery, and a practitioner of high reputation and immense experience—we may assuredly regard his work now before us as representing the most advanced state of obstetric science in America up to the time at which he writes. We consider Dr. Meigs' book as a valuable acquisition to obstetric literature, and one that will very much assist the practitioner under many circumstances of doubt and perplexity.—*The Dublin Quarterly Journal.*

These various heads are subdivided so well, so lucidly explained, that a good memory is all that is necessary in order to put the reader in possession of a thorough knowledge of this important subject. Dr. Meigs has conferred a great benefit on the profession in publishing this excellent work.—*St. Louis Medical and Surgical Journal.*

No reader will lay the volume down without admiration for the learning and talents of the author. An abler volume, on the whole, we do not hope soon to see.—*Western Journal of Medicine and Surgery.*

A safe and efficient guide to the delicate and oftimes difficult duties which devolve upon the obstetrician.—*Ohio Medical and Surgical Journal.*

One of the very best treatises on this subject, and worthy of being placed in the library of every American physician.—*Northwestern Medical and Surgical Journal.*

He has an earnest way with him when speaking of the most elementary subjects which fixes the attention and adds much value to the work as a text-book for students.—*British and Foreign Medico-Chirurgical Review.*

TYLER SMITH ON PARTURITION—(Lately Issued.)

ON PARTURITION,

AND THE PRINCIPLES AND PRACTICE OF OBSTETRICS.

BY W. TYLER SMITH, M. D.,

Lecturer on Obstetrics in the Hunterian School of Medicine, &c. &c.

In one large duodecimo volume, of 400 pages.

The work will recommend itself by its intrinsic merit to every member of the profession.—*Lancet.*

We can imagine the pleasure with which William Hunter or Denman would have welcomed the present work; certainly the most valuable contribution to obstetrics that has been made since their own day. For ourselves, we consider its appearance as the dawn of a new era in this department of medicine. We do most cordially recommend the work as one absolutely necessary to be studied by every accoucheur. It will, we may add, prove equally interesting and instructive to the student, the general practitioner, and pure obstetrician. It was a bold undertaking to reclaim parturition for Reflex Physiology, and it has been well performed.—*London Journal of Medicine.*

LEE'S CLINICAL MIDWIFERY—(Lately Issued.)

CLINICAL MIDWIFERY,

COMPRISING THE HISTORIES OF FIVE HUNDRED AND FORTY-FIVE CASES OF DIFFICULT, PRETERNATURAL, AND COMPLICATED LABOR, WITH COMMENTARIES.

BY ROBERT LEE, M. D., F. R. S., &c.

From the 2d London Edition.

In one royal 12mo. volume, extra cloth, of 238 pages.

More instructive to the juvenile practitioner than a score of systematic works.—*Lancet.*

An invaluable record for the practitioner.—*N. Y. Annalist.*

A storehouse of valuable facts and precedents.—*American Journal of the Medical Sciences.*

CHURCHILL'S MIDWIFERY, BY CONDIE, NEW AND IMPROVED EDITION—(Now Ready.)

ON THE

THEORY AND PRACTICE OF MIDWIFERY.

BY FLEETWOOD CHURCHILL, M. D., &c.

A NEW AMERICAN FROM THE LAST AND IMPROVED ENGLISH EDITION.

EDITED, WITH NOTES AND ADDITIONS,

BY D. FRANCIS CONDIE, M. D.,

Author of a "Practical Treatise on the Diseases of Children," &c.

WITH ONE HUNDRED AND THIRTY-NINE ILLUSTRATIONS.

In one very handsome octavo volume.

In the preparation of the last English edition, from which this is printed, the author has spared no pains, with the desire of bringing it thoroughly up to the present state of obstetric science. The labors of the editor have thus been light, but he has endeavored to supply whatever he has thought necessary to the work, either as respects obstetrical practice in this country, or its progress in Europe since the appearance of Dr. Churchill's last edition. Most of the notes of the former editor, Dr. Huston, have been retained by him, where they have not been embodied by the author in his text. The present edition of the favorite text-book is therefore presented to the profession in the full confidence of its meriting a continuance of the great reputation which it has acquired as a work equally well fitted for the student and practitioner.

To bestow praise on a book that has received such marked approbation would be superfluous. We need only say, therefore, that if the first edition was thought worthy of a favorable reception by the medical public, we can confidently affirm that this will be found much more so. The lecturer, the practitioner, and the student, may all have recourse to its pages, and derive from their perusal much interest and instruction in everything relating to theoretical and practical midwifery.—*Dublin Quarterly Journal of Medical Science.*

A work of very great merit, and such as we can confidently recommend to the study of every obstetric practitioner.—*London Medical Gazette.*

This is certainly the most perfect system extant. It is the best adapted for the purposes of a text-book, and that which he whose necessities confine him to one book, should select in preference to all others.—*Southern Medical and Surgical Journal.*

The most popular work on Midwifery ever issued from the American press.—*Charleston Medical Journal.*

Certainly, in our opinion, the very best work on the subject which exists.—*N. Y. Annalist.*

Were we reduced to the necessity of having but *one* work on Midwifery, and *permitted to choose*, we would unhesitatingly take Churchill.—*Western Medical and Surgical Journal.*

It is impossible to conceive a more useful and elegant Manual than Dr. Churchill's Practice of Midwifery.—*Provincial Medical Journal.*

No work holds a higher position, or is more deserving of being placed in the hands of the tyro, the advanced student, or the practitioner.—*Medical Examiner.*

NEW EDITION OF RAMSBOTHAM ON PARTURITION—(*Now Ready*, 1851.)

THE PRINCIPLES AND PRACTICE OF

OBSTETRIC MEDICINE AND SURGERY,

In reference to the Process of Parturition.

BY FRANCIS H. RAMSBOTHAM, M. D.,

Physician to the Royal Maternity Charity, &c. &c.

SIXTH AMERICAN FROM THE LAST LONDON EDITION.

Illustrated with One Hundred and Forty-eight Figures on Fifty-five Lithographic Plates.

In one large and handsomely printed volume, imperial octavo, with 520 pages.

In this edition the plates have all been redrawn, and the text carefully read and corrected. It is therefore presented as in every way worthy the favor with which it has so long been received.

From Professor Hodge, of the University of Pennsylvania.

To the American public, it is most valuable, from its intrinsic undoubted excellence, and as being the best authorized exponent of British Midwifery. Its circulation will, I trust, be extensive throughout our country.

We recommend the student, who desires to master this difficult subject with the least possible trouble, to possess himself at once of a copy of this work.—*American Journal of the Medical Sciences.*

It stands at the head of the long list of excellent obstetric works published in the last few years in Great Britain, Ireland, and the Continent of Europe. We consider this book indispensable to the library of every physician engaged in the practice of Midwifery.—*Southern Medical and Surgical Journal.*

When the whole profession is thus unanimous in placing such a work in the very first rank as regards the extent and correctness of all the details of the theory and practice of so important a branch of learning, our commendation or condemnation would be of little consequence; but, regarding it as the most useful of all works of the kind, we think it but an act of justice to urge its claims upon the profession.—*N. O. Med. Journal.*

DEWEES'S MIDWIFERY.

A COMPREHENSIVE SYSTEM OF MIDWIFERY.

ILLUSTRATED BY OCCASIONAL CASES AND MANY ENGRAVINGS.

BY WILLIAM P. DEWEES, M. D.

Tenth Edition, with the Author's last Improvements and Corrections. In one octavo volume, of 600 pages.

PEREIRA'S MATERIA MEDICA.

NEW EDITION, GREATLY IMPROVED AND ENLARGED—(Nearly Ready.)

THE ELEMENTS
OF MATERIA MEDICA AND THERAPEUTICS.

COMPREHENDING THE NATURAL HISTORY, PREPARATION, PROPERTIES, COMPOSITION, EFFECTS, AND USES OF MEDICINES.

BY JONATHAN PEREIRA, M. D., F. R. S. AND L. S.

Third American from the Third and Enlarged London Edition.

WITH ADDITIONAL NOTES AND OBSERVATIONS BY THE AUTHOR.

EDITED BY JOSEPH CARSON, M. D.,

Professor of Materia Medica and Pharmacy in the University of Pennsylvania.

In two very large volumes, on small type, with about four hundred illustrations.

The third London edition of this great work has been thoroughly revised and greatly enlarged by the author, who has spared no pains to render it complete in every part, by the addition of a very large amount of matter and the introduction of many new illustrations. The present American edition, however, in addition to this, will not only enjoy the advantages of a careful and accurate superintendence by the editor, but will also embody the additions suggested by a further revision by the author, expressly for this country, embracing the most recent discoveries, and the results of several pharmacopœias which have appeared since the publication of part of the London edition. The notes of the American editor will be prepared with reference to the new edition of the United States Pharmacopœia, and will contain such matter generally as may be required to adapt it fully to the wants of the American student and practitioner, as well as such recent investigations and discoveries as may have escaped the attention of the author. The profession may therefore rely on being able to procure a work which will not only maintain but increase its right to the appellation of

AN ENCYCLOPÆDIA OF MATERIA MEDICA AND THERAPEUTICS.

We shall only remark that every article bears witness to the industry and indefatigable research of the author. Instead of being merely the elements of materia medica, it constitutes a complete encyclopædia of this important subject. The student of physiology, pathology, chemistry, botany, and natural history, will find herein the most recent facts and discoveries in his favorite branch of study, and the medical practitioner will have in this work a safe guide for the administration and employment of medicines.—*London Medical Gazette.*

The present edition (the third) is very much enlarged and improved, and includes the latest discoveries and views respecting medicines and their properties. We believe that this work has no equal in value as a book of reference, or of general information on materia medica.—*The Lancet.*

ROYLE'S MATERIA MEDICA.

MATERIA MEDICA AND THERAPEUTICS;

INCLUDING THE

Preparations of the Pharmacopœias of London, Edinburgh, Dublin, and of the United States.

WITH MANY NEW MEDICINES.

BY J. FORBES ROYLE, M. D., F. R. S.,

Professor of Materia Medica and Therapeutics, King's College, London, &c. &c.

EDITED BY JOSEPH CARSON, M. D.,

Professor of Materia Medica and Pharmacy in the University of Pennsylvania.

WITH NINETY-EIGHT ILLUSTRATIONS.

In one large octavo volume, of about seven hundred pages.

Being one of the most beautiful Medical works published in this country.

This work is, indeed, a most valuable one, and will fill up an important vacancy that existed between Dr. Pereira's most learned and complete system of Materia Medica, and the class of productions on the other extreme, which are necessarily imperfect from their small extent.—*British and Foreign Medical Review.*

POCKET DISPENSATORY AND FORMULARY.

A DISPENSATORY AND THERAPEUTICAL REMEMBRANCER. Comprising the entire lists of Materia Medica, with every Practical Formula contained in the three British Pharmacopœias. With relative Tables subjoined, illustrating by upwards of six hundred and sixty examples, the Extemporaneous Forms and Combinations suitable for the different Medicines. By JOHN MAYNE, M. D., L. R. C. S., EDIN., &c. &c. Edited, with the addition of the formulæ of the United States Pharmacopœia, by R. EGLESFELD GRIFFITH, M. D. In one 12mo. volume, of over three hundred large pages.

The neat typography, convenient size, and low price of this volume, recommend it especially to physicians, apothecaries, and students in want of a pocket manual.

THE THREE KINDS OF COD-LIVER OIL,

Comparatively considered, with their Chemical and Therapeutic Properties, by L. J. DE JONGH, M. D. Translated, with an Appendix and Cases, by EDWARD CAREY, M. D. To which is added an article on the subject from "Dunglison on New Remedies." In one small 12mo. volume, extra cloth.

NEW UNIVERSAL FORMULARY.—(Just Issued.)

A UNIVERSAL FORMULARY,

CONTAINING THE

METHODS OF PREPARING AND ADMINISTERING OFFICINAL AND OTHER MEDICINES.

THE WHOLE ADAPTED TO PHYSICIANS AND PHARMACEUTISTS

BY R. EGLESFELD GRIFFITH, M. D.,

Author of "American Medical Botany," &c.

In one large octavo volume of 568 pages, double columns.

In this work will be found not only a very complete collection of formulæ and pharmaceutic processes, collected with great care from the best modern authorities of all countries, but also a vast amount of important information on all collateral subjects. To insure the accuracy so necessary to a work of this nature, the sheets have been carefully revised by Dr. Robert Bridges, while Mr. William Procter, Jr., has contributed numerous valuable formulæ, and useful suggestions.

The want of a work like the present has long been felt in this country, where the physician and apothecary have hitherto had access to no complete collection of formulas, gathered from the pharmacopœias and therapeutists of all nations. Not only has this desideratum been thoroughly accomplished in this volume, but it will also be found to contain a very large number of recipes for empirical preparations, valuable to the apothecary and manufacturing chemist, the greater part of which have hitherto not been accessible in this country. It is farther enriched with accurate tables of the weights and measures of Europe; a vocabulary of the abbreviations and Latin terms used in Pharmacy; rules for the administration of medicines; directions for officinal preparations; remarks on poisons and their antidotes; with various tables of much practical utility. To facilitate reference to the whole, extended indices have been added, giving to the work the advantages of both alphabetical and systematic arrangement.

To show the variety and importance of the subjects treated of, the publishers subjoin a very condensed

SUMMARY OF THE CONTENTS, IN ADDITION TO THE FORMULARY PROPER, WHICH EXTENDS TO BETWEEN THREE AND FOUR HUNDRED LARGE DOUBLE-COLUMNED PAGES.

PREFACE.

INTRODUCTION.

WEIGHTS AND MEASURES.
Weights of the United States and Great Britain.—Foreign Weights.—Measures.

SPECIFIC GRAVITY.

TEMPERATURES FOR CERTAIN PHARMACEUTICAL OPERATIONS.

HYDROMETRICAL EQUIVALENTS.

SPECIFIC GRAVITIES OF SOME OF THE PREPARATIONS OF THE PHARMACOPŒIAS.

RELATION BETWEEN DIFFERENT THERMOMETRICAL SCALES.

EXPLANATION OF PRINCIPAL ABBREVIATIONS USED IN FORMULÆ.

VOCABULARY OF WORDS EMPLOYED IN PRESCRIPTIONS.

OBSERVATIONS ON THE MANAGEMENT OF THE SICK ROOM.
Ventilation of the Sick room.—Temperature of the Sick room.—Cleanliness in the Sick room.—Quiet in the Sick room.—Examination and Preservation of the Excretions.—Administration of Medicine.—Furniture of a Sick room.—Proper use of Utensils for Evacuations.

DOSES OF MEDICINES.
Age.—Sex.—Temperament.—Idiosyncrasy.—Habit.—State of the System.—Time of day.—Intervals between Doses.

RULES FOR ADMINISTRATION OF MEDICINES.
Acids.—Antacids.—Antilithics and Lithontriptics.—Antispasmodics.—Anthelmintics.—Cathartics.—Enemata.—Suppositories.—Demulcents or Emollients.—Diaphoretics.—Diluents.—Diuretics.—Emetics.—Emmenagogues.—Epispastics.—Errhines.—Escharotics.—Expectorants.—Narcotics.—Refrigerants.—Sedatives.—Sialagogues.—Stimulants.—Tonics.

MANAGEMENT OF CONVALESCENCE AND RELAPSES.

DIETETIC PREPARATIONS NOT INCLUDED AMONG THE PREVIOUS PRESCRIPTIONS.

LIST OF INCOMPATIBLES.

POSOLOGICAL TABLES OF THE MOST IMPORTANT MEDICINES.

TABLE OF PHARMACEUTICAL NAMES WHICH DIFFER IN THE U. STATES AND BRITISH PHARMACOPŒIAS.

OFFICINAL PREPARATIONS AND DIRECTIONS.

INTERNAL REMEDIES.
Powders.—Pills and Boluses.—Extracts.—Confections.—Conserves, Electuaries.—Pulps.—Syrups.—Mellites or Honeys.—Infusions.—Decoctions.—Tinctures.—Wines.—Vinegars.—Mixtures.—Medicated Waters.—Distilled, Essential or Volatile Oil.—Fixed Oils and Fats.—Alkaloids.—Spirits.—Troches or Lozenges.—Inhalations.

EXTERNAL REMEDIES.
Baths.—Cold Bath.—Cool Bath.—Temperate Bath.—Tepid Bath.—Warm Bath.—Hot Bath.—Shower Bath.—Local Baths.—Vapor Bath.—Warm Air Bath.—Douches.—Medicated Baths.—Affusion.—Sponging.—Fomentations.—Cataplasms, or Poultices.—Lotions, Liniments, Embrocations.—Vesicatories, or Blisters.—Issues.—Setons.—Ointments.—Cerates.—Plasters.—Fumigations.

BLOOD-LETTING.
General Blood-Letting.—Venesection.—Arteriotomy.—Topical Blood-Letting.—Cupping.—Leeching.—Scarifications.

POISONS.

INDEX OF DISEASES AND THEIR REMEDIES.

INDEX OF PHARMACEUTICAL AND BOTANICAL NAMES

GENERAL INDEX.

From the condensed summary of the contents thus given it will be seen that the completeness of this work renders it of much practical value to all concerned in the prescribing or dispensing of medicines.

MOHR, REDWOOD, AND PROCTER'S PHARMACY.—Just Issued.

PRACTICAL PHARMACY.

COMPRISING THE ARRANGEMENTS, APPARATUS, AND MANIPULATIONS OF THE PHARMACEUTICAL SHOP AND LABORATORY.

BY FRANCIS MOHR, PH. D.,
Assessor Pharmaciæ of the Royal Prussian College of Medicine, Coblentz;
AND THEOPHILUS REDWOOD,
Professor of Pharmacy in the Pharmaceutical Society of Great Britain.
EDITED, WITH EXTENSIVE ADDITIONS, BY PROFESSOR WILLIAM PROCTER,
Of the Philadelphia College of Pharmacy.

In one handsomely printed octavo volume, of 570 pages, with over 500 engravings on wood.

To physicians in the country, and those at a distance from competent pharmaceutists, as well as to apothecaries, this work will be found of great value, as embodying much important information which is to be met with in no other American publication.

After a pretty thorough examination, we can recommend it as a highly useful book, which should be in the hands of every apothecary. Although no instruction of this kind will enable the beginner to acquire that practical skill and readiness which experience only can confer, we believe that this work will much facilitate their acquisition, by indicating means for the removal of difficulties as they occur, and suggesting methods of operation in conducting pharmaceutic processes which the experimenter would only hit upon after many unsuccessful trials; while there are few pharmaceutists, of however extensive experience, who will not find in it valuable hints that they can turn to use in conducting the affairs of the shop and laboratory. The mechanical execution of the work is in a style of unusual excellence. It contains about five hundred and seventy large octavo pages, handsomely printed on good paper, and illustrated by over five hundred remarkably well executed wood-cuts of chemical and pharmaceutical apparatus. It comprises the whole of Mohr and Redwood's book, as published in London, rearranged and classified by the American editor, who has added much valuable new matter, which has increased the size of the book more than one-fourth, including about one hundred additional wood-cuts.—*The American Journ. of Pharmacy.*

It is a book, however, which will be in the hands of almost every one who is much interested in pharmaceutical operations, as we know of no other publication so well calculated to fill a void long felt.—*The Medical Examiner.*

The country practitioner who is obliged to dispense his own medicines, will find it a most valuable assistant.—*Monthly Journal and Retrospect.*

The book is strictly practical, and describes only manipulations or methods of performing the numerous processes the pharmaceutist has to go through, in the preparation and manufacture of medicines, together with all the apparatus and fixtures necessary thereto. On these matters, this work is very full and complete, and details, in a style uncommonly clear and lucid, not only the more complicated and difficult processes, but those not less important ones, the most simple and common. The volume is an octavo of five hundred and seventy-six pages. It is elegantly illustrated with a multitude of neat wood engravings, and is unexceptionable in its whole typographical appearance and execution. We take great satisfaction in commending this so much needed treatise, not only to those for whom it is more specially designed, but to the medical profession generally—to every one, who, in his practice, has occasion to prepare, as well as administer medical agents.—*Buffalo Medical Journal.*

NEW AND COMPLETE MEDICAL BOTANY.

MEDICAL BOTANY;

OR, A DESCRIPTION OF ALL THE MORE IMPORTANT PLANTS USED IN MEDICINE, AND OF THEIR PROPERTIES, USES, AND MODES OF ADMINISTRATION.

BY R. EGLESFELD GRIFFITH, M. D., &c. &c.

In one large 8vo. vol. of 704 pages, handsomely printed, with nearly 350 illustrations on wood.

One of the greatest acquisitions to American medical literature. It should by all means be introduced at the very earliest period, into our medical schools, and occupy a place in the library of every physician in the land.—*Southwestern Medical Advocate.*

Admirably calculated for the physician and student—we have seen no work which promises greater advantages to the profession.—*N. O. Medical and Surgical Journal.*

One of the few books which supply a positive deficiency in our medical literature.—*Western Lancet.*

We hope the day is not distant when this work will not only be a text-book in every medical school and college in the Union, but find a place in the library of every private practitioner.—*N. Y. Journ. of Medicine.*

ELLIS'S MEDICAL FORMULARY.—Improved Edition.

THE MEDICAL FORMULARY:

BEING A COLLECTION OF PRESCRIPTIONS, DERIVED FROM THE WRITINGS AND PRACTICE OF MANY OF THE MOST EMINENT PHYSICIANS OF AMERICA AND EUROPE.

To which is added an Appendix, containing the usual Dietetic Preparations and Antidotes for Poisons.

THE WHOLE ACCOMPANIED WITH A FEW BRIEF PHARMACEUTIC AND MEDICAL OBSERVATIONS.

BY BENJAMIN ELLIS, M. D.

NINTH EDITION, CORRECTED AND EXTENDED, BY SAMUEL GEORGE MORTON, M. D.

In one neat octavo volume of 268 pages.

CARPENTER ON ALCOHOLIC LIQUORS.—(A New Work.)

A Prize Essay on the Use of Alcoholic Liquors in Health and Disease. By William B. Carpenter, M. D., author of "Principles of Human Physiology," &c. In one 12mo. volume.

NEW AND IMPROVED EDITION—(Just Issued.)

ELEMENTARY CHEMISTRY,

THEORETICAL AND PRACTICAL.

BY GEORGE FOWNES, PH. D.,

Chemical Lecturer in the Middlesex Hospital Medical School, &c. &c.

WITH NUMEROUS ILLUSTRATIONS.

THIRD AMERICAN, FROM A LATE LONDON EDITION. EDITED, WITH ADDITIONS,

BY ROBERT BRIDGES, M. D.,

Professor of General and Pharmaceutical Chemistry in the Philadelphia College of Pharmacy, &c. &c.

In one large royal 12mo. vol., of over 500 pages, with about 180 wood-cuts, sheep or extra cloth.

At the time of his death, Professor Fownes had just completed the revision of this work for his third edition, and, at his request, Dr. H. Bence Jones undertook the office of seeing it through the press, and making such additions in the department of Animal Chemistry as were rendered necessary by the numerous discoveries daily making in that branch of the science. The task of the American editor, therefore, has merely been to add such new matter as may since have appeared, and to adapt the whole to the wants of the American student, by appending in the form of notes such points of interest as would be calculated to retain the position which the original has so justly obtained, and to maintain it on an equality with the rapid advance of chemical science. It will, therefore, be found considerably enlarged and greatly improved. Notwithstanding its increase in size, it has been kept at its former extremely low price, and may now be considered as one of the

CHEAPEST TEXT-BOOKS ON CHEMISTRY NOW EXTANT.

The work of Dr. Fownes has long been before the public, and its merits have been fully appreciated as the best text-book on Chemistry now in existence. We do not, of course, place it in a rank superior to the works of Brande, Graham, Turner, Gregory, or Gmelin, but we say that, as a work for students, it is preferable to any of them.—*London Journal of Medicine.*

The rapid sale of this Manual evinces its adaptation to the wants of the student of chemistry, whilst the well known merits of its lamented author have constituted a guarantee for its value, as a faithful exposition of the general principles and most important facts of the science to which it professes to be an introduction.

We have only to add, that Dr. Bence Jones appears to have performed his editorial task most thoroughly, the want of the author's final supervision being nowhere discoverable.—*The British and Foreign Medico-Chirurgical Review.*

A work well adapted to the wants of the student. It is an excellent exposition of the chief doctrines and facts of modern chemistry, originally intended as a guide to the lectures of the author, corrected by his own hand shortly before his death in 1849, and recently revised by Dr. Bence Jones, who has made some additions to the chapter on animal chemistry. Although not intended to supersede the more extended treatises on chemistry, Professor Fownes' Manual may, we think, be often used as a work of reference, even by those advanced in the study, who may be desirous of refreshing their memory on some forgotten point. The size of the work, and still more the condensed yet perspicuous style in which it is written, absolve it from the charges very properly urged against most manuals termed popular, viz., of omitting details of indispensable importance, of avoiding technical difficulties, instead of explaining them, and of treating subjects of high scientific interest in an unscientific way.—*Edinburgh Monthly Journal of Medical Science.*

BOWMAN'S MEDICAL CHEMISTRY—(Just Issued.)

PRACTICAL HANDBOOK OF MEDICAL CHEMISTRY.

BY JOHN E. BOWMAN, M. D.

In one neat volume, royal 12mo., with numerous illustrations.

We cannot too highly commend the very elaborate, yet clear and distinct manner, in which the appearances of these fluids, and their variations in disease, are described. To the practitioner, the book is specially recommended, as giving a very clear account of many chemical matters which must be ever coming before him in his daily practice. Every practitioner, and every student of clinical medicine, should endeavor to enrich his collection of books with Mr. Bowman's little volume.—*London Journal of Medicine.*

Mr. Bowman has succeeded in supplying a desideratum in medical literature. In the little volume before us, he has given a concise but comprehensive account of all matters in chemistry which the man in practice may desire to know.—*Lancet.*

BY THE SAME AUTHOR—(Lately Issued.)

INTRODUCTION TO PRACTICAL CHEMISTRY, Including Analysis.

With Numerous Illustrations. In one neat volume, royal 12mo.

GARDNER'S MEDICAL CHEMISTRY.

MEDICAL CHEMISTRY,

FOR THE USE OF STUDENTS AND THE PROFESSION:

BEING A MANUAL OF THE SCIENCE. WITH ITS APPLICATIONS TO TOXICOLOGY, PHYSIOLOGY, THERAPEUTICS, HYGIENE, &c.

BY D. PEREIRA GARDNER, M. D.

In one handsome royal 12mo. volume, with illustrations.

New Edition, Preparing.—THE ELEMENTS OF CHEMISTRY.

INCLUDING THE APPLICATION OF THE SCIENCE TO THE ARTS. WITH NUMEROUS ILLUSTRATIONS.

BY THOMAS GRAHAM, F. R. S., L. E. & D.

WITH NOTES AND ADDITIONS BY ROBERT BRIDGES, M. D., &c. &c.

SIMON'S ANIMAL CHEMISTRY, with Reference to the Physiology and Pathology of Man. By G. E. DAY. One vol. 8vo., 700 pages.

TAYLOR'S MEDICAL JURISPRUDENCE.

MEDICAL JURISPRUDENCE.

BY ALFRED S. TAYLOR,

SECOND AMERICAN, FROM THE THIRD AND ENLARGED LONDON EDITION.

With numerous Notes and Additions, and References to American Practice and Law.

BY R. E. GRIFFITH, M. D.

In one large octavo volume.

This work has been much enlarged by the author, and may now be considered as the standard authority on the subject, both in England and this country. It has been thoroughly revised, in this edition, and completely brought up to the day with reference to the most recent investigations and decisions. No further evidence of its popularity is needed than the fact of its having, in the short time that has elapsed since it originally appeared, passed to three editions in England, and two in the United States.

We recommend Mr. Taylor's work as the ablest, most comprehensive, and, above all, the most practically useful book which exists on the subject of legal medicine. Any man of sound judgment, who has mastered the contents of Taylor's "Medical Jurisprudence," may go into a court of law with the most perfect confidence of being able to acquit himself creditably.—*Medico-Chirurgical Review.*

The most elaborate and complete work that has yet appeared. It contains an immense quantity of cases lately tried, which entitle it to be considered what Beck was in its day.—*Dublin Medical Journal.*

TAYLOR ON POISONS.

ON POISONS,

IN RELATION TO MEDICAL JURISPRUDENCE AND MEDICINE.

BY ALFRED S. TAYLOR, F. R. S., &c.

EDITED, WITH NOTES AND ADDITIONS, BY R. E GRIFFITH, M. D.

In one large octavo volume, of 688 pages.

The most elaborate work on the subject that our literature possesses.—*Brit. and For. Medico-Chirur. Review.*

One of the most practical and trustworthy works on Poisons in our language.—*Western Journal of Med.*

It contains a vast body of facts, which embrace all that is important in toxicology, all that is necessary to the guidance of the medical jurist, and all that can be desired by the lawyer.—*Medico-Chirurgical Review.*

It is, so far as our knowledge extends, incomparably the best upon the subject; in the highest degree creditable to the author, entirely trustworthy, and indispensable to the student and practitioner.—*N. Y. Annalist.*

BEALE ON HEALTH—JUST READY.

THE LAWS OF HEALTH IN RELATION TO MIND AND BODY.

A SERIES OF LETTERS FROM AN OLD PRACTITIONER TO A PATIENT.

BY LIONEL JOHN BEALE, M. R. C. S., &c.

In one handsome volume, royal 12mo., extra cloth.

The "Laws of Health," in relation to mind and body, is a book which will convey much instruction to non-professional readers: they may, from these letters, glean the principles upon which young persons should be educated and derive much useful information, which will apply to the preservation of health at all ages.—*Med. Times.*

GREGORY ON ANIMAL MAGNETISM—(Now Ready.)

LETTERS TO A CANDID ENQUIRER

ON ANIMAL MAGNETISM.

DESCRIPTION AND ANALYSIS OF THE PHENOMENA. DETAILS OF FACTS AND CASES.

BY WILLIAM GREGORY, M. D., F. R. S. E.,

Professor of Chemistry in the University of Edinburgh, &c.

In one neat volume, royal 12mo., extra cloth.

TRANSACTIONS OF THE

AMERICAN MEDICAL ASSOCIATION.

VOLUME I. FOR 1848, VOL. II. FOR 1849, VOL. III. FOR 1850.

Large octavo, extra cloth, or paper covers for mailing.

Any volume sold separate, or the whole in sets at a reduced price.

☞ Orders for the supply of Medical Societies should be sent direct to the Treasurer of the Association, Isaac Hays, M. D., care of Blanchard & Lea, with the amount enclosed.

DUNGLISON ON HUMAN HEALTH—HUMAN HEALTH, or the Influence of Atmosphere and Locality, Change of Air and Climate, Seasons, Food, Clothing, Bathing, Exercise, Sleep, &c. &c. &c. on healthy man; constituting Elements of Hygiene. Second edition, with many modifications and additions. By Robley Dunglison, M. D. &c. &c. In one octavo volume of 464 pages.

DUNGLISON'S MEDICAL STUDENT.—The Medical Student, or Aids to the Study of Medicine. Revised and Modified Edition. 1 vol. royal 12mo., extra cloth. 312 pp.

BARTLETT'S PHILOSOPHY OF MEDICINE.—An Essay on the Philosophy of Medical Science. In one handsome 8vo volume. 312 pp.

BARTLETT ON CERTAINTY IN MEDICINE.—An Inquiry into the Degree of Certainty in Medicine, and into the Nature and Extent of its Power over Disease. In one vol. royal 12mo. 84 pp.

NEW AND ENLARGED EDITION—(Lately Issued.)

MEDICAL LEXICON;

A DICTIONARY OF MEDICAL SCIENCE,

CONTAINING

CONCISE EXPLANATIONS OF THE VARIOUS SUBJECTS AND TERMS, WITH THE FRENCH AND OTHER SYNONYMES; NOTICES OF CLIMATE AND OF CELEBRATED MINERAL WATERS; FORMULÆ FOR VARIOUS OFFICINAL AND EMPIRICAL PREPARATIONS, ETC.

BY ROBLEY DUNGLISON, M. D., &c.

SEVENTH EDITION,

CAREFULLY REVISED AND GREATLY ENLARGED.

In One very large and beautifully printed Octavo Volume of over Nine Hundred Pages, closely printed in double columns. Strongly bound in leather, with raised bands.

This edition is not a mere reprint of the last. To show the manner in which the author has labored to keep it up to the wants of the day, it may be stated to contain over SIX THOUSAND WORDS AND TERMS more than the fifth edition, embracing altogether satisfactory definitions of

OVER FORTY-FIVE THOUSAND WORDS.

Every means has been employed in the preparation of the present edition, to render its mechanical execution and typographical accuracy in every way worthy its extended reputation and universal use. The size of the page has been enlarged, and the work itself increased more than a hundred pages; the press has been watched with great care; a new font of type has been used, procured for the purpose; and the whole printed on fine clear white paper, manufactured expressly for it. Notwithstanding this marked improvement over all former editions, the price is retained at the original low rate, placing it within the reach of all who may have occasion to refer to its pages, and enabling it to retain the position which it has so long occupied, as

THE STANDARD AMERICAN MEDICAL DICTIONARY.

This most complete medical Lexicon—certainly one of the best works of the kind in the language.—*Charleston Medical Journal.*

The most complete Medical Dictionary in the English language.—*Western Lancet.*

Familiar with nearly all the medical dictionaries now in print, we consider the one before us the most complete, and an indispensable adjunct to every medical library.—*British American Medical Journal.*

Admitted by all good judges, both in this country and in Europe, to be equal, and in many respects superior to any other work of the kind yet published.—*Northwestern Medical and Surgical Journal.*

The most comprehensive and best English Dictionary of medical terms extant.—*Buffalo Med. Journal.*

MANUALS FOR EXAMINATION—(Lately Issued.)

AN ANALYTICAL COMPENDIUM

OF THE VARIOUS BRANCHES OF MEDICAL SCIENCE,

FOR THE USE AND EXAMINATION OF STUDENTS.

BY JOHN NEILL, M. D.,

AND

FRANCIS GURNEY SMITH, M. D.,

Forming one very large and handsomely printed volume in royal duodecimo, of over 900 large pages, with about 350 wood engravings, strongly bound in leather, with raised bands.

Taking the work before us, we can certainly say that no one who has not occupied himself with the different scientific treatises and essays that have appeared recently, and has withal a rare memory, could pretend to possess the knowledge contained in it; and hence we can recommend it to such—as well as to students especially—for its general accuracy and adequacy for their purposes; and to the well-informed practitioner to aid him in recalling what may easily have passed from his remembrance. We repeat our favorable impression as to the value of this book, or series of books; and recommend it as decidedly useful to those especially who are commencing the study of their profession.—*The Medical Examiner.*

We have no hesitation in recommending it to students.—*Southern Medical and Surgical Journal.*

We recommend this work especially to the notice of our junior readers.—*London Medical Gazette.*

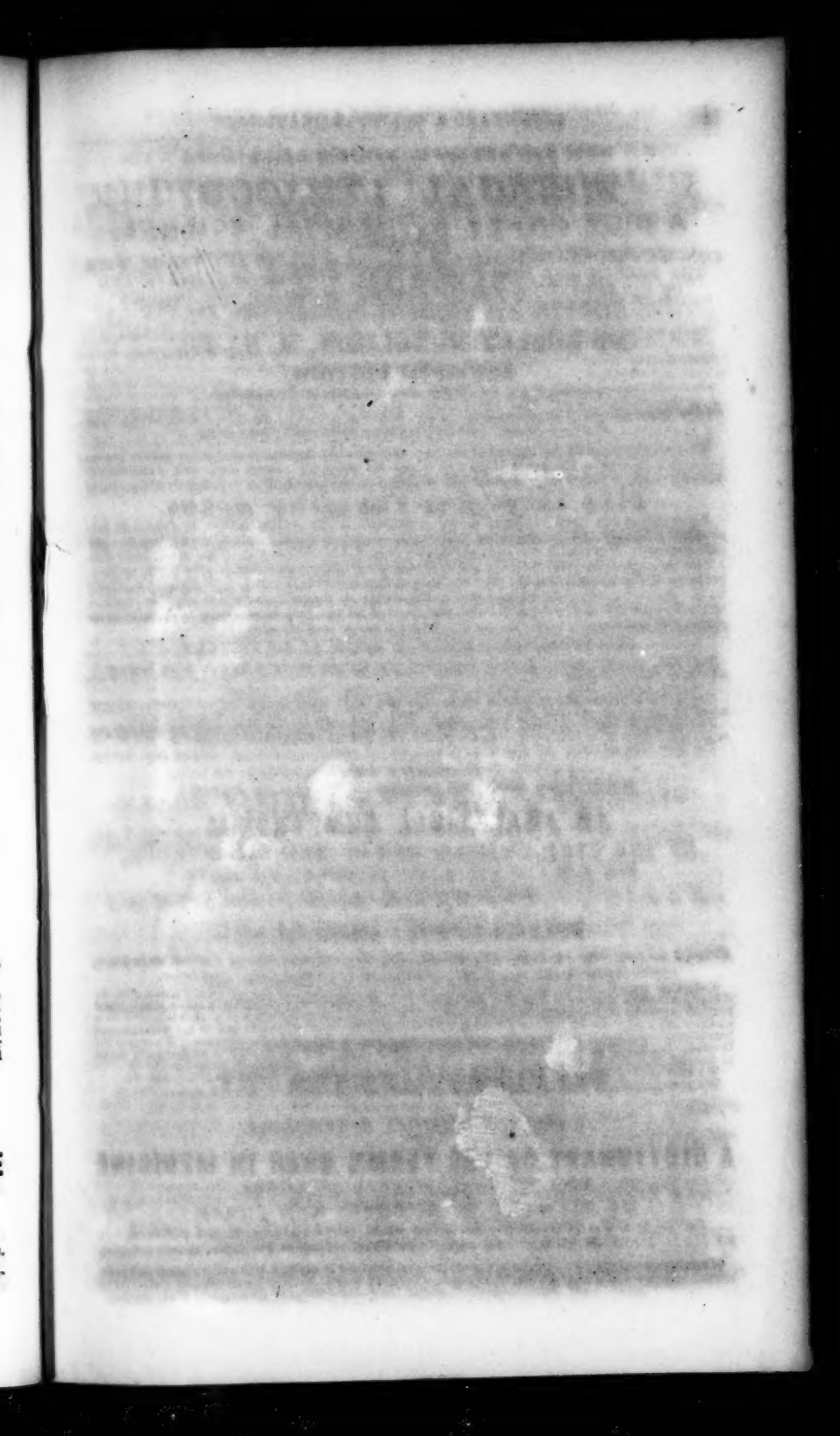
HOBLYN'S MEDICAL DICTIONARY.

A DICTIONARY OF THE TERMS USED IN MEDICINE

AND THE COLLATERAL SCIENCES.

BY RICHARD D. HOBLYN, A. M., Oxon.

REVISED, WITH NUMEROUS ADDITIONS, FROM THE SECOND LONDON EDITION,

BY ISAAC HAYS, M. D., &c. In one large royal 12mo. volume of 402 pages, double columns.

We cannot too strongly recommend this small and cheap volume to the library of every student and practitioner.—*Medico-Chirurgical Review.*